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I. The Practical Value of the Study of Personality in Mental Disorders. <i>George S. Amsden</i>	501
II. The Physiologic Level in Dementia Præcox. <i>Theophile Raphael</i>	515
III. A Study of the Mechanism of Obsessive Compulsive Conditions. <i>Phyllis Greenacre</i>	527
IV. Types of Word-Association in Dementia Præcox, Manic-Depressives, and Normal Persons. <i>Gardner Murphy</i>	539
V. A Statistical Analysis of Certain Phases of Epilepsy. <i>Olive Cushing Smith</i>	573
VI. Further Report on Nurses Conduct Scheme. <i>James S. Plant</i>	593
VII. General Pathology and its Relationship to Certain Mental Diseases. <i>Robert A. Keilly</i>	615
VIII. General Paresis: What it is and its Therapeutic Possibilities. <i>H. C. Solomon</i> ...	623
IX. Some Important Factors in the Hospital Treatment of Psychoneurotic Ex-Service Men. <i>Thomas T. Heldt</i>	647
X. The Neuropsychiatric Service of the Department of Soldiers' Civil Re-Establishment, Canada. <i>Clarence B. Farrar</i>	665
XI. The Neuropsychiatric Ex-Service Man and His Civil Re-Establishment. <i>Guy O. Ireland</i>	685
XII. Psychotic Symptoms of Epilepsy. <i>Harlan L. Paine</i>	713
XIII. Notes and Comment: The Treatment of Paresis by Malaria.—An Honor to Dr. Charles K. Clarke.	721
XIV. Association and Hospital Notes and News: The Seventy-Ninth Annual Meeting of the American Psychiatric Association.—Fire at the Manhattan, New York State Hospital.—Governor Smith and the N. Y. State Hospitals.....	724
XV. Book Reviews: The Elements of Scientific Psychology. By Knight Dunlap, Professor of Experimental Psychology, Johns Hopkins University, etc. (St. Louis: C. V. Mosby Co., 1922.)—Mental Diseases: A Public Health Problem. By James V. May, M. D., Superintendent Boston State Hospital, Boston, Mass., etc. With a Preface by Thomas W. Salmon, M. D., Professor of Psychiatry Columbia University, Medical Advisor to the National Committee for Mental Hygiene, New York. (Boston: Richard G. Badger, 1922.).....	730
XVI. In Memoriam: Jesse Montgomery Mosher.—Herbert James Hall.....	733
XVII. Appointments, Resignations, Etc.....	746
XVIII. Index, Volume II.....	753

3.

501

515

527

539

573

593

615

623

647

665

685

713

721

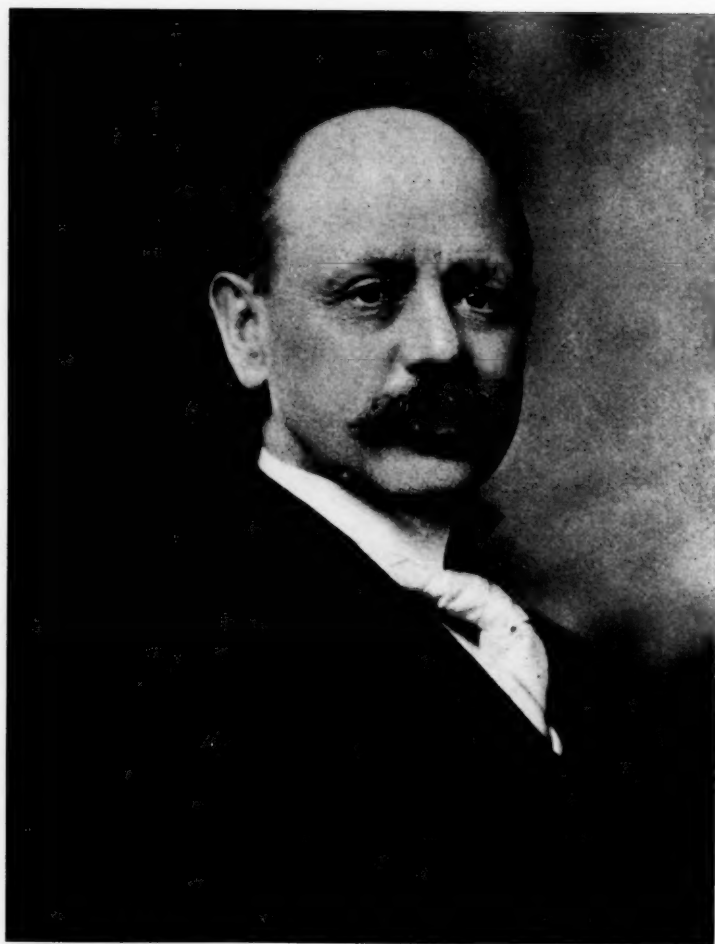
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753



DR. JESSE MONTGOMERY MOSHER.

AMERICAN JOURNAL OF PSYCHIATRY

THE PRACTICAL VALUE OF THE STUDY OF PERSONALITY IN MENTAL DISORDERS.*

By GEORGE S. AMSDEN, M. D.,

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In 1913, after a number of years of especial attention to the method of studying the personality, Dr. August Hoch and I devised a guide. In arranging it, we, at the time, felt that it was in many respects tentative and had some question as to the wisdom of publishing it. It appears, nevertheless, to have served a useful purpose. Since that time, however, continued use of the guide has indicated that a fundamental revision of it is desirable. The main plan of the revision was well outlined in my own mind but had not been submitted to Dr. Hoch before his death. The revision I am now offering is made on my own responsibility.

It must still be admitted that the study of the personality is yet in a crude, elementary stage. In fact, it is not altogether easy to give a generally acceptable determination of what should be included under the term personality. It is plain that a study of the personality may be approached from at least two points of view. No one is prepared to act wisely upon his estimate of a personality who does not reckon with the phylogenic components of it. On the other hand, no one is able to act wisely upon an estimate of the personality who does not also take into consideration those determinants which have arisen in the efforts of the individual to mobilize his endowment and to train it upon the problems with which his own environment and his own nature have faced him. The modifying reflex effect of these efforts upon the physiological processes of the organism cannot with safety be ignored. The ideal method takes advantage of both avenues of approach. Largely from the second point of view and with

* Read at the seventy-eighth annual meeting of The American Psychiatric Association, Quebec, Canada, June 6, 7, 8, 9, 1922.

practical psychiatric needs in mind, we may formulate a narrow definition of personality as *the aggregate of those tendencies predisposing to reactions which the individual has come habitually to display in the adjustments his life has required of him*. These preferred reactions, or personal traits, may be those whose nucleus is of an instinctive nature; they may relate to behavior in which complex emotions are especially in the foreground; they may relate to the ease or difficulty of conscious response to new situations. A statement or summary of a personality would, therefore, attempt to indicate the reactional assets and liabilities of the individual in such wise that an insight is gained into the probable general course of action he would, under given circumstances, follow.

The concept of personality is, therefore, closely linked with that of behavior. The more fundamental of these reactions, for instance, those involved in self protection and those concerned with propagation, have their origin in the dawn period of the race. The ease with which these reactions come into play is, in some way, due to ruts worn in the process of racial development. The basis of these reactions we bring with us into the world just as we bring with us the potentiality of balance in an erect position, the certainty of the growth, etc. They are phylogenic characters. These ingrained phylogenic predispositions are fairly evenly distributed among the individuals of the race and form the tissue of our personalities. The physiological determinants thus thoroughly built into the foundation of the organism present, among those of a group, wide variations while yet the individual maintains a satisfactory stability. There is just now a strong inclination to ascribe many reaction tendencies to the kindling or retarding influences of the glands of internal secretion. It is asserted that certain reactions are maintained along with the even working of glands corresponding, and that the physiological predominance of any of the glands predisposes the individuals to favor the reactions of which the predominating glands are regarded as regulative. Following this, certain types of endocrine personality are described, such as the adrenal, thyroid, and pituitary types. In some of the recently published studies it is assumed that the personality is so definitely a functional result of endocrine activity that the personality problem is greatly simplified.

However this may be, it is plain that the intellectual and emotional components of the personality are subject to modification by the vicissitudes of the life history of the individual. In the feeling or emotional components, the influence of the life history rises to its maximum. Through the influence of the emotions attention may be absorbed and retention rendered deviate; the natural tendency to constructive intellectual activity may, by distorted emotional interest, swerve from a useful, constructive action to one of unconstructive or disintegrating indulgence.

A study of the settled behavior policies of the individual, as represented in the personality, is important to the psychiatrist for the reason that it furnishes a protocol of his reactional or adjustment probabilities. Long before the psychosis we are usually able to see in the personality premonitions of neuro-psychiatric trouble. To what extent a knowledge of the personality may be employed in prophylaxis we as yet know relatively little that is verifiable, though it seems as if we might hope for much in this direction. The type of psychotic behavior may often be predicted from an understanding of the personality. The behavior within the psychosis will in general conform to, or be modified by, the personality. The psychotic behavior is often fruitfully interpreted only on the background of a knowledge of the personality. There is, of course, truth in the tradition that psychotic behavior is apt to be the reverse of what may ordinarily be expected. But the psychiatrist knows that this apparent reversal is merely the dominance, at the moment, of reactional tendencies released by the illness. In such a case a proper study of the personality previous to the psychosis probably would reveal the presence of these reactional tendencies held in check by inhibitions. In the psychoses in which the organic etiological factors are obviously in the foreground there is apt to be a return of behavior to archaic or primitive forms, much the same for all individuals. Yet, even in these, we see the behavior colored by the personality. When, in the psychosis, the organic features are less obvious or not demonstrable we see more and more that the psychotic behavior follows the trends of the personality, often, of course, mixed or distorted.

Furthermore, from an analysis of the personality of an individual we may, with much certainty, estimate the degree to which unfortunate, psychotic reactions may remain fixed; we are enabled to judge with an accuracy, otherwise impossible, what likelihood there is that healthful or corrective reaction tendencies will assert themselves and with what final effect. More than this, a study of the personality reveals the resources the patient may be expected, or led, to employ in the process of his treatment and it enables the physician to map out a treatment or retraining programme with precision. From the standpoint of interpretation, therefore, in the interest of diagnosis, prognosis, and treatment, the personality contains an important store of information. A knowledge of the personality enables us to transcend the mechanical limits of nosology. Perhaps, it is not too much to say that good judgment of psychiatric cases has always been dependent upon an estimate, intuitive or studied, of the personal make-up.

The method of studying the personality to be described is simple. In the plan of it, certain topics or aspects of the personality, four in number, are selected, about each of which related information is to be grouped. The aim is to determine the practically important, habitually preferred reactions within the limits of the topics chosen. The selection of these large topics is pre-eminently a practical one and a criticism of it from an academic point of view has not appeared especially useful. The technique of gathering the information is simple, though tact and discrimination are indispensable. It is accumulated from relatives, friends, teachers, employers, or others who may know the individual. The information must, of course, be checked up as the enquiry proceeds in order to correct mutual misunderstanding and must relate only to those periods of the patient's life when he was well. The more the patient is able to lend himself to enquiry in the same way the more accurate the result will be. It is surprising to learn how satisfactorily this study may be carried out, even with informants habituated only to moderately careful discrimination.

The four large topics about which the information is accumulated are: First, the intellectual activities; second, the somatic demands; the third topic, difficult to characterize, is that embraced by the individual's self-criticism and self-estimate; the fourth is

not easily indicated, but may be referred to as the urgency or imperative to adaptation.

The intellectual activity is chosen first for the reason that it enables us readily to orient ourselves with the patient. It has been found best to group the information according to a somewhat formal, and perhaps artificial, plan of gathering, first, that which bears upon the impressionability—that is, on the receptive and acquisitive aspect of intellectual activity; next, that which indicates the retentiveness; and, finally, that which enables us to estimate how constructively past experience is used. In gathering these data it is especially advantageous to make the enquiries also contribute as much as may be to an estimate of the liveliness of the individual's sense of reality. Not infrequently a study of the reactions associated with the intellectual activities reveals the essentials of a case. For, if a person of good receptivity is somewhat inattentive or absent-minded, somewhat impractical, lacking in intellectual initiative, impulsive in judgment, a little disinclined to plan well, and, if it appears, also, that these reaction tendencies indicate a fairly general lowered sense of reality, we then know that we have to do, in all probability, not with an individual primarily defective intellectually, but rather with one sidetracked by some sort of competing interest, usually a deviate emotional or somatic one. We know that such an individual may be compromised in a dangerous respect. On the other hand, if the individual is unusually alert, very receptive, very inquisitive, busy intellectually, we may be reasonably well assured that his sense of reality is satisfactory and our further question, perhaps already tentatively answered in outline, is whether the busy intellectual activity is constructively co-ordinated, or whether it more definitely contributes, for instance, to the foundation for a manic disorder. Other suggestions inevitably arise early in the study. They should be kept in mind and allowed to serve as motives for deepening the enquiry in appropriate directions as the study progresses. It is, also, especially important to note interests and aptitudes which may be utilized in retraining the patient while under treatment and in formulating advice as to plans after he leaves us.

The second of the four general topics about which it is desirable to gather information is that which we may speak of as the

somatic demands. In some respects we might, perhaps, better speak of psychosomatic demands. These latter, of course, reach their maximum in those associated with sex interests. For our purposes these latter differ not so much in quality as in variety and intensity from other less conspicuous demands. Some of the more vague demands, such as those indicated by posture, gait, nail biting, response to skin and mucous membrane stimuli evoked by irregularity of pressure of clothing, temperature, and moisture, etc., are noteworthy. While, perhaps, they are hard to ask about, it is important to have them registered for they gauge well the tendency of the individual to be committed to sensuous reactions. Information concerning similar and, it may be, less vague demands, such as those which find expression in ease and comfort indulgence, in eating, drinking, smoking, and trivial indulgences such as gum chewing, biting the lips, etc., serve also to enable us to estimate how completely the individual is liable to surrender himself to still more concrete somatic demands.

Of the more concrete somatic demands two are of importance for our purpose—the demand for motor or psychomotor activity, and the demands of sex. An estimate upon the demand for motor or psychomotor activity, as gauged by a natural tendency to activity with push and display of energy, by talkativeness and enthusiasm, or by a natural tendency to inactivity, under-talkativeness, desultoriness, sluggishness, etc., is of obvious importance to the psychiatrist. He must account for a plus or minus activity. He must eventually form an opinion as to whether the plus or minus is, for instance, due primarily to a physical or physiological deviation, or whether there is at play as an important factor some type of morbid fascination or tendency to compensatory activity.

The remaining group of somatic demands—that relating to sex—as has already been stated, differs from the foregoing types chiefly in the wide variety in which it finds assertion, in the reinforcement this demand receives in its association with the procreative instinct, and in the psychosexual elaboration and ramification of this demand into fields ranging from an idealism to those of vulgar coarseness. For the preliminary purposes of the psychiatrist a study very simple as compared with the elaborate analysis of the psychoanalytic type is sufficient. We wish to estimate how frankly the demand has been met by the

patient. If frankly, we wish to know whether the reactions he has committed himself to are hygienic or unhygienic. If not frankly, we wish to know whether the lack of frankness has resulted in deviate reactions of a hampering sort: whether, for instance, a feeling of guilt or a hypersensitiveness has steered the individual out of corrective contact with others and so increased his discomfort and has led to unhealthful habits, often of a compensatory nature. Accurate information in this general field is rarely obtained directly. It is usually necessary to rely upon inferences drawn from data relating to such details as the nature of the individual's friends and friendships, relations within his family, tics, phobias, eccentricities, reactions in relation to feeling of affection and sympathy, and reactions which may have as their nuclei prudishness, over-niceness, or their opposites. Inferences drawn from such data are to be supported or weakened by facts already obtained or yet to be obtained. Often, the inference must remain at the level of conjecture until the patient himself is examined. The physician, by this enquiry into reactions arising out of demands of sex, is especially prepared to trace the significance of the data gathered about the next general topic, the individual's ingenuous criticism or estimate of himself, since deviations in this field are very likely to form a basis for adverse self criticism.

This estimate or criticism of self as a motive of behavior, the third of the four chief topics, opens a chapter of personality study of the utmost interest to the psychiatrist. A tendency to measure or compare ourselves with others and the problems presented to us by our environment is, of course, a natural and desirable one. This comparison may, at times, and in respect to some topics, be made very consciously, or, again, automatically. In any case, the comparison results in a feeling related either to a sense of ease or to one of discomfort, according as the comparison is favorable or unfavorable. If favorable, and other things are equal, the reaction tendencies are apt to be consistent with an ingenuous acceptance of capability or adequacy. In such a case the personality is regarded as a good one. If the comparison results unfavorably, the door is opened to a wide variety of possibilities. The individual may then respond very frankly and show a healthful inclination to correct, amplify, or

otherwise increase his proficiency of adjustment, and again the personality in this respect is regarded as a good one. An unfavorable comparison may evoke habitually a tendency to shrink. Such an individual may display reactions of a clinging dependent type. Another individual with a tendency to shrink may simply lie down and refuse or neglect his responsibilities or he may by cunning or deceit try to avoid them. Still other individuals with this tendency mechanically resort to evasions of other types. The devices he may habitually employ in this automatic evasion are numerous, and among them compensatory and substitutive reactions are conspicuous. In this way is built up an habitual reaction complex which is likely to give an especial color to the personality. It is this complex which this section of the study of the personality should undertake to penetrate.

The first problem is to determine whether the individual in question does, to a significant degree, compare himself unfavorably. Then it is necessary to learn how widely the personality is affected and finally to estimate the degree to which the personality may be affected. In perhaps 80 per cent of cases who suffer a significant degree of a feeling of disadvantage when compared with others, or with the demands of their environment, this feeling escapes notice of the friends and relatives, and, of course, it is very often only blindly realized, if at all, by the individual himself. In such cases it is necessary again to depend for an estimate upon indirect evidence. Safe inferences are readily drawn from such information as whether the individual is much or little influenced in feeling by the opinion others hold of him, whether he is proud or vain, whether he is incommensurately fussy about his dress, and whether he makes much of his discomforts. A person with a relatively good feeling of security will usually show little, if any, of these in his habitual reactions.

In social relations there is found another rather delicate test for this feeling of security or insecurity. The ability to make friends, the degree of easiness or uneasiness in the presence of strangers, the tendency to jealousy, and elaborations of these details serve as excellent touchstones for our purposes. By this time it is usually clear whether the patient has a feeling of insecurity of any consequence. Sometimes, however, the question is still in doubt. In any case, it is important to learn of the habitual

reactions of mood. A feeling of insecurity may only appear, in a tangible expression, in a reduction of the mood, changeableness of mood, exaggerated reaction to disappointment, worry, anxiety, apprehensiveness, irritability, sensitiveness to criticism, and so on. In all this inquiry, it is, at first, somewhat easy to be thrown off guard by compensatory bluntness, hail-fellow attitude, cheerfulness, and the like. A little experience, however, enables one to detect such subterfuges.

At this stage of the enquiry one is almost always reasonably well satisfied as to whether the patient lends himself, to any important extent, to reactions motivated by a feeling of insecurity. The degree to which he may be on guard as a result of this feeling still remains to be estimated. This estimate is satisfactorily made by enquiries which show the extent to which the patient may be reticent, over-conscientious, committed to habits of fixed routine and to a demand for excessive precision; by enquiries into reactions such as ability to obey and to co-operate, to receive advice, ability to receive correction or to see one's mistakes—in other words, by the degree of stubbornness. If, also, we enquire into the presence of habitual reactions related to jealousy, to scrutiny of others and suspiciousness, we shall not only have estimated in a practical way the intensity of his feeling of insecurity, but we shall, also, have registered the individual's tendencies with regard to some of the most important and crucial reactions of the whole personality. This is especially true if we wish to compare him with conventionalized standards. It is still more far-reaching if we are interested to gauge the flexibility of adaptation and ability to learn from experience. It is, of course, very common for many of these traits to appear in a person who keeps a normal balance. In fact, the primary impulse, of which these are exaggerations or distortions, may be a favorable one. When, however, we have a break in our adaptational compensation, as we have in mental disorders, the presence or absence of traits of this class is, for diagnosis, prognosis, and treatment, of crucial importance.

The fourth and last topic, about which it is desirable, for a survey of the personality, to group tendencies to reaction, is that indicated in the reply to the question, "Why adapt ourselves at all?" The reply is that we experience normally a compelling

urgency which leads us to attempt to adapt ourselves. This urgency amounts to an imperative and may be spoken of as the imperative to adaptation. This has all the while been the tacitly important topic of our study. Our interest has been to determine that which tends to favor or impede the operation of this tendency. This conception should not be confused with that of muscular vigor and alertness to which reference has already been made. While ambition, for instance, is very apt to depend upon a substratum of muscular alertness and vigor, it is not necessarily so supported. It is this added high-level component of push and striving with a purpose beyond that of the moment to which it is desired to call attention. The inclination among healthy persons to the assertion of this imperative is so general that we may assume that a relative absence of it is pathological. A constructive assertion of it is seen directly in ambition, courageousness, and vigorousness generally. We should make a rule always to account for a marked diminution of these reaction tendencies. Another assertion of this tendency is of particular importance. This employs reactions which, owing to their normal accompaniment of an emotional tone of pleasure or satisfaction serve as balancing interests. These reactions are displayed in the prosecution of cultural interests, in diversion, sports, games, hobbies and the like. If we wished to characterize these reactions formally we might speak of them as para-constructive reactions. They form, for the psychiatrist, a group of special value, not only because by their presence or absence they help us to estimate the personality, but because they often constitute resources we rely upon in the retraining of our patients.

In this plan of grouping information concerning the personality I have endeavored to place emphasis on practical purposefulness. Each major section establishes a definite point so that, taken together, the several points thus defined summarize for us the main trends of the personality. The first section is intended to provide a general survey of the intellectual reactions with special reference to handicaps; the second section is designed to reveal possible handicaps of more purely somatic origin; the third section seeks to bring out how fundamentally satisfied the individual is with himself and to register in terms of fortunate or unfortunate reactions the degree of this satisfaction or dissatis-

faction; the last section amplifies the information from the standpoint of the eagerness of the individual to live and to enjoy. One of the chief difficulties encountered in making a personality survey is that of keeping the investigations from becoming diffuse and lacking in pointedness. An endeavor has been made to meet this, and in this effort it is well appreciated that in some respects the scheme described may be somewhat forced. Nevertheless, experience has proved that it has practical value, however much it may diverge from that which is acceptable psychologically or otherwise. It is well understood that so brief an exposition leaves much that is obscure. Nevertheless, it is probable that a more detailed description would be scarcely more clear, for only repeated and intelligent practice in the use of the plan will procure this satisfaction.

DISCUSSION.

DR. CAMPBELL.—I think we hardly realize the importance of a discussion of this type. It deals with factors which are of the very greatest importance, not merely in the severe cases of disorder which we meet with in hospitals, which we refer to as examples of disease, but it deals with many other disorders which handicap people. An analysis of this kind if followed takes us into the school, into the university. It brings up suggestions for the training of the individual, and I think a type of analysis such as we have had presented to us here might very well be the key-note of every department of psychology in our universities. With those who are working out problems of diseases, this type of analysis is not very popular. Obviously it furnishes no short cuts. I think it is a work of necessity at the present moment and will always be a work of necessity. I do not think we will ever find the key to the integration of the individual for his social and ethical adjustments in any study of the simple processes which are the key of so many somatic disorders, where we do not need to refer to the human individual who owns the disorders. Our problem is not the treatment of disease, it is the treatment of the individual. We have, as psychiatrists, comparatively little to do with the treatment of disease irrespective of the personality. Perhaps physicians are beginning to realize they are not dealing with disease; it is no new conception. In the footnotes to Florence Nightingale's *Notes on Nursing*, she makes a very significant statement, "diseases are not cats and dogs." We, however, have been too prone to forget this under the influence of laboratory medicine. I do not think that we can ever resolve complex human disorders of thought or behavior by means of any simple formula, by means of a formula taken from internal medicine, or by any combination of the theoretical instincts of the individual. I think we shall always have to realize that the simple conditioned activities of the system are woven into higher activities which

have to be studied at their own level. Some may look upon an analysis of this kind as a rather abstract study. I know of no more concrete study than the study of personality which Dr. Amsden has brought before us. It deals with the solid fact before which we are placed, the fact of human behavior and human thought. And the hormones and toxins and the other formulæ which are brought before us are extremely abstract. In taking up the study of this concrete reality, we must do it in a very systematic way. Dr. Amsden has made a most stimulating contribution. It does not require quite the same technical laboratory equipment as is required for other forms of investigation. It needs curiosity and earnestness. It may well appeal to those who are not equipped with laboratories, but who look upon their problem as the concrete problem of behavior in relation to environment. The physician influenced by this point of view will be of very great use to his patient and contribute material which will be of fundamental benefit to those who are interested in education.

DR. WM. L. RUSSELL.—I did not intend to speak, but nobody else seems to be inclined to. As all of you probably know, Dr. Amsden is a member of the staff of the Bloomingdale Hospital, of which I am medical director. He has spent many years in working out the personality problem with a view to some precision. This afternoon we heard about the desirability of putting a little more science into the financial management of the institutions. We all feel that it is quite desirable to do this. Now we all find it necessary to refer to personality questions in dealing with our patients, and we use the data in a practical if not a precise way. We know, too, that in the course of the development of the medical study of the patients in our hospitals we have in recent years been getting away more and more from formal diagnosis. We are no longer putting in a long period in staff conferences in determining just how to label the patient. The main effort, is now to make an analysis of the patient and of the situation to determine what there is that can be understood and turned to account in treatment. What Dr. Amsden is trying to do is to make the method more precise; and he has really made a great stride in this direction. If I may be allowed to do so, I commend to your very careful attention this paper when it is printed, and I am sure Dr. Amsden will welcome criticism and knowledge of further study along this line. I agree with Dr. Campbell that this is really a concrete and excellent contribution, and it will help us to do our work in a more precise way.

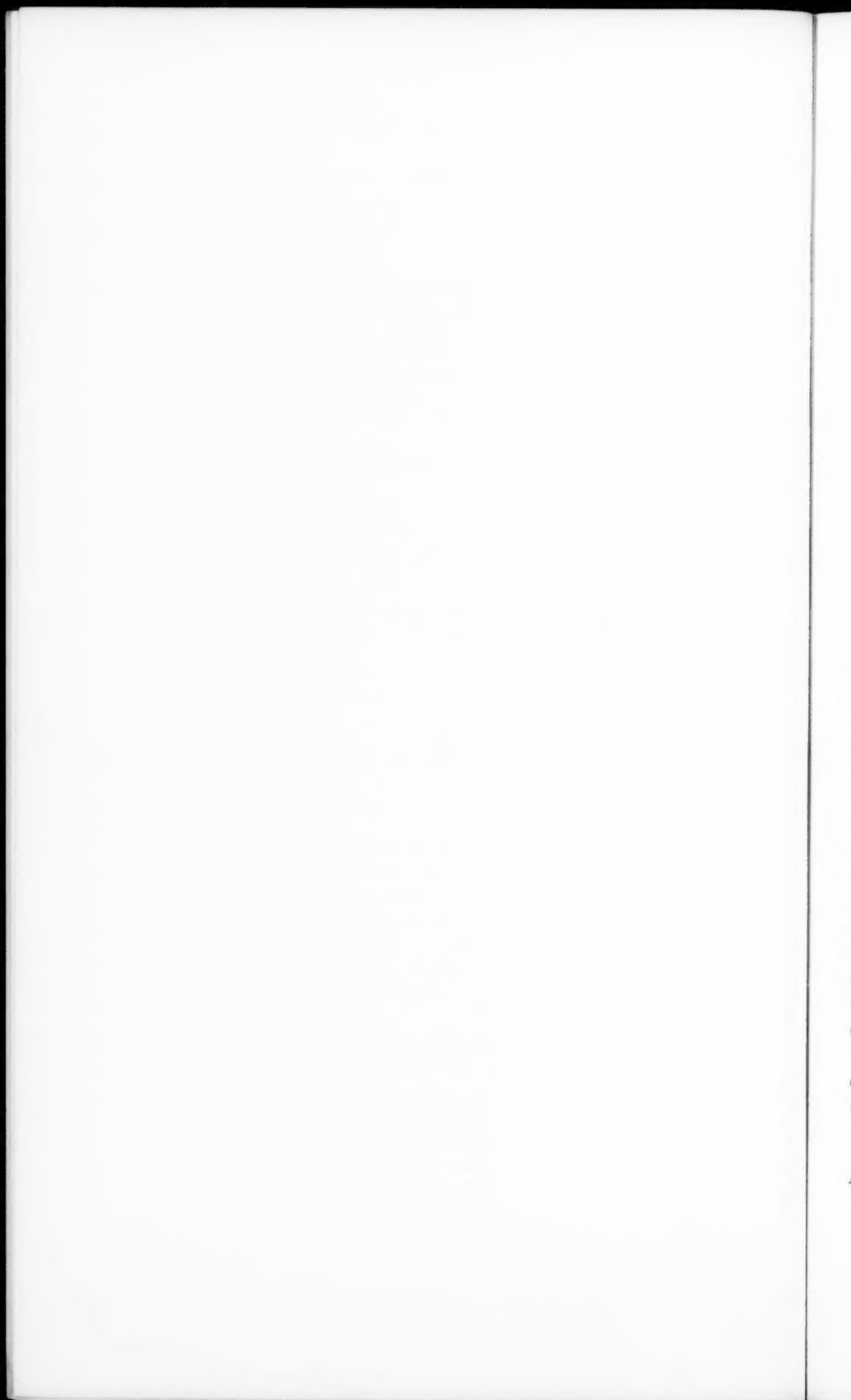
DR. GOSLINE.—Mr. President, I don't want to drop any bomb shells into this happy situation, but I was taught that there are three sides to a personality—a physical side, a mental side and a social side. Whether that is true or not, there is practical value in considering symptoms in this manner—to set those that have social values in one group and those that are primarily mental in another group, and those that are primarily physical in a third group. The physical side, it seems to me, is somehow belittled by certain schools of thought. This work of Dr. Amsden deserves the highest

praise, because it is part of that tremendous effort which is being made to-day to understand the symptoms of our patients. This division of social, mental and physical is of practical value in helping me to decide what is the trouble with my patients.

DR. BOND.—I think that the Association ought to tell Dr. Amsden that in this field in which he is leader we need his help in just such a clean-cut paper as he has given us to-night. I know for years every psychiatrist who has spoken to me about personality has brought Dr. Amsden's name into the discussion, and we all need to read this paper, think about it a lot, and have Dr. Amsden teach us how to do a concrete piece of work, no matter how many other definite pieces of work we may have before us.

DR. AMSDEN.—Mr. President, there are only one or two points I wish to speak of. In the first place, the scheme which I proposed I have given with some hesitancy, because it is formal and concerns a matter about which it is exceedingly difficult to be formal. What I have really sought to do is to formulate a standard outline for a status which may serve as a safe and useful point of departure. I would emphasize that it is in the departure from this, that one is likely to define that which is unique and peculiar to the individual under examination. Without a standard outline to serve as a skeleton for a study, the unique features are likely to lose their organic bearing and so become merely striking.

Another important point is that in making a personality study, it is the easiest thing in the world, as Dr. Glueck pointed out to-day, to degenerate into mere words. The examination should be made, as far as possible, in terms of actual situation, so that we may know, not how the reactions may be characterized, but what in themselves the reactions really are.



THE PHYSIOLOGIC LEVEL IN DEMENTIA PRÆCOX.*

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The question of the physiology, so to speak, of dementia præcox, is of distinct interest—academically, of course, from the standpoint of the possible determination of basic somatic, or better, perhaps somatophysiologic reaction, with derivative significance as to the importance of course phase and even as to the essential validity, of the at-present-obtaining, typage hierarchy. Practically, too, this consideration possesses a real interest particularly through the possibility of primary susceptible implication as regards the endocrino-autonomic field and actually concomitant pathophysiologic deviation, with its inseparable metabolic and vegetative relationships (wholly aside from the matter of somatic or psychic primacy), factors obviously of vital importance from the point of view of rational clinical comprehension and therapeutics.

That there is indication in this disorder of fundamental metabolic change associated with a certain endocrino-autonomic dysbalance is very evident from even casual scrutiny of the already bulky literature, although, to be sure, very little of this work, particularly the older contributions, is of any real meaning largely because of its scattering, partial character, technical inadequacy and confusion, not only as to correct phasing, but even as to actual diagnostic verity, thus rendering most difficult any attempt at validly finite induction. However, a number of truly significant contributions have been made, from various angles, which enlarge, seem to indicate unequivocally, although admittedly in a preliminary and particulative way, the possibility of the existence of such disturbance.

Thus, the occurrence of striking vasomotor disorder, bradycardia, hypothermia, vascular hypotension, epinephrin insensitivity, transient thyroid swellings, dermic changes, and other

* Read at the seventy-eighth annual meeting of The American Psychiatric Association, Quebec, Canada, June 6, 7, 8, 9, 1922.

features suggestive of vegetative deviation by Kraepelin,¹ later by Eppinger and Hess,² and Laignel-Lavastine,³ and very recently by Büchler,⁴ who reports the frequent occurrence of vagotonic trends; evidence of thyroid deficiency by Uyematsu;⁵ thyroid, gonadic, pituitary, adrenal and mixed types by Büchler, frequent status lymphaticus by Emerson⁶ (thymoadrenal syndrome of Timme); thyroid, adrenal, pituitary and polyglandular states by Lewis and Davis;⁷ also gonadic deficiency, essentially upon a hypo-oxidative basis, by Mott⁷ and latterly noted in gross by Kirby and Gibbs.⁸ Mott, too, has presented evidence of underlying systemic hypo-oxidation as a result of histopathologic brain studies and the same has been indicated by Pighini⁹ on the basis of urinary findings, and by Grafe¹⁰ and Bowman¹¹ through study of basal rate, although for the most part, in these cases, no especial emphasis seems to have been placed upon type or phase. These latter findings have been recently confirmed through studies as regards the oxidase contents of the spinal fluid in a series of very carefully typed acute and chronic cases by Hyaschi¹² with evidence of distinct hypo-oxidative trend in the former. Further evidence of this order has been contributed through blood sugar tolerance studies by Kooy,¹³ Lorenz,¹⁴ Olmstead and Gay,¹⁵ Hall and Neymann,¹⁶ and Parsons and myself.¹⁷

In summary, then, the work thus far reported strikingly suggests the occurrence in dementia præcox of definite physiologic deviation, hypo-oxidative in type, with definite vegetative implications—which may be primary, secondary, or associative, as regards the essential psychiatric disturbance.

On this basis, therefore, the present studies were undertaken, and with a view to following out these leads, from various points of attack, upon a large series of frank cases, carefully controlled, in various phases of the affection, in the possible hope of arriving, in assembly, at valid formulation of status upon this level.

The actual laboratory determinations were carried out by expert workers to whom the specific nature of the material was largely unknown, thus avoiding the possibility of suggestive determinism, and, at this point, I beg to acknowledge my indebtedness for technical assistance, in these studies, to Drs. R. M. Greenthal, J. P. Parsons, and L. O. Hoag, and to Miss M. N. Woodwell, all of the University Hospital, Ann Arbor, Mich.

As to actual procedure and findings—first a series of carefully controlled pharmacodynamic vegetative studies were made upon 56 cases, 19 old or clinically adjusted cases and 37 still definitely in the acute or exacerbative phase of the disorder. The tests actually employed were pilocarpine (1/18 grain), esserin (1/4 mg.), atropin (1/100 grain), and epinephrin (1 mg.) administered subcutaneously, the latter also applied to the conjunctivæ. On the basis of these reactions no deviation was determined in the first group, but a total deviation of 70 per cent observed in the active cases, thus, 48 per cent on the vagotonic side and 22 per cent on the sympathicotonic side—indicating definitely the occurrence of a certain autonomic instability predominantly vagotonic and, in this sense, definitely corroborative of Büchler's observations, although, in his studies, no apparent attention was paid to phasic relationship.

Blood fat determinations were carried out according to the Hoag³⁸ modification of the original Bloor technic which may be described as follows: About 92 per cent to 95 per cent of the total lipoids of the blood are extracted by placing 2 c. c. of accurately measured whole oxalated blood in 60-70 c. c. of a 3-1 absolute alcohol-ether mixture, and bringing the contents of the flask up to a bubbling temperature by immersing about 25 seconds in a boiling water bath. After cooling to room temperature, the clear alcohol-ether extract is filtered free from the protein precipitate, all filter and flask rinsings added, and the volume brought up to 100 c. c. volumetrically. For the determination, a portion of the filtrate is taken which contains, as nearly as possible, 0.002 grams of dissolved fat. For a normal blood this aliquot portion is usually from 10-15 c. c. This is saponified by heating over a water bath with 0.1 c. c. of 70 per cent watery sodium hydroxide solution. The resulting soap is evaporated until nearly all the moisture has been driven off, then the residue is heated again after adding 5 c. c. of 3-1 alcohol-ether. The soap is dissolved in 50 c. c. of distilled water, from which solution the fatty acids are precipitated in the form of a fine emulsion by the addition of 10 c. c. of 1-3 hydrochloric acid in distilled water. The resulting cloud is compared in a nephelometer at the end of 5-10 minutes, with a similar cloud which is produced simultaneously in a standard solution containing exactly 0.002 grams of oleic acid. The

standard is so made up that 5 c. c. of the 1-3 alcohol-ether solvent contains 0.002 grams of chemically pure oleic acid and this portion is treated in this same way as the unknown—saponification, solution in distilled water (50 c. c.), and precipitation with 1-3 hydrochloric acid. By means of the nephelometric comparison it is easy to compute the amount of fatty acids, in terms of oleic acid, present in the aliquot portion of unknown filtrate used. From this the amount of fatty acids present in the whole 100 c. c. of filtrate (representing 2 c. c. of whole blood), and finally the amount present in 100 c. c. of blood is easily calculated in terms of oleic acid. This figure represents the per cent of total lipoids in the blood.

As regards findings in the matter of fat tolerance or utilization (ingestion of 4.5 g. fat per kg. body weight in 40 per cent cream with blood fat analyses made every two hours for ten hours) on a series of three acute and two adjusted cases, no definite deviation was observed as compared to the normal. However, it was found from the study of fasting blood-lipoid values, that of a series of 31 cases including 11 adjusted and 20 acute types, while no change was discoverable among the former, a deviation of 85 per cent occurred in the acute cases. These patients showed slight to moderate relative hypolipemia, thus .45-.64 mg. per 100 c. c. as compared to the normal average .67 mg. per 100 c. c., thus indicative of metabolic disturbance in this regard—presumably hypo-oxidative.

Blood sugar tolerance was studied according to the standard technic of Lewis-Benedict and Folin and the schema of Janney and Isaacson¹⁹ in 32 cases and revealed definite initial hypoglycemia even in the fairly well adjusted cases but more markedly in the acute or exacerbative types and additionally, in the later group, there was evidence of a definite delay in tolerance as described in a previous paper,¹⁷ as a rule, rather more strikingly in the more stuporous reactions and somewhat less so in those physically active. This situation is indicated in diagrammatic average in Fig. 1.

This finding of initial hypoglycemia is of great interest from the standpoint of its vegetative and metabolic implication, suggesting, as it does, metabolic depression, an hypo-oxidative status essentially, with probable endocrine participation—particularly as to the

thyroid, pituitary and suprarenals, the sympathicotonic group so termed, and seems valid inasmuch as it has been corroborated by Kooy, Wuth,²⁰ and Hall and Neymann, and has been triple

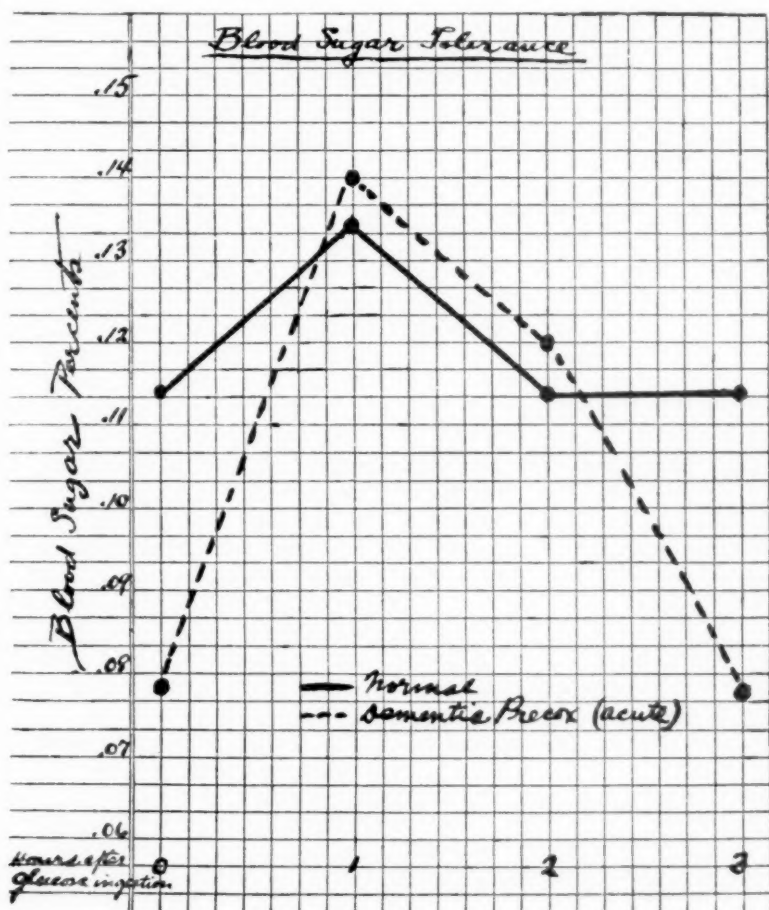


FIG. 1.

checked by ourselves. The significance of the tolerance delay is somewhat obscure, but is, obviously, a deviation and probably is best explained on the basis of an essentially sluggish catabolism.

Epinephrin glycemic response was also investigated through blood sugar determinations after the intramuscular administration

of epinephrin at intervals of $\frac{1}{2}$ -1-2-3 $\frac{1}{2}$ -5-6 $\frac{1}{2}$ hours. In this study 10 acute cases were employed, in all of whom definite abnormalities occurred apparently largely in proportion to the degree of phase acuity. This deviation as compared to the normal (Fig. 2) was particularly marked through the absence of normal reaction pit and subsequent rebound, strongly suggesting, among other possibilities, that of basic hypoadrenalismus (Cowie and Beaven).²¹

Study of the hepatic function was made utilizing the technic of Aaron, Beck, and Schneider,²² depending upon time of dye recovery (phenoltetrachlorphthalein) in the bile, following intravenous administration, which in the average normal represents an interval of approximately 17 minutes. Our series included 13 cases of which four were of the adjusted type and nine acute. No apparent deviation was observed as regards the former, but definite indication of delay or functional insufficiency was noted in all but one of the acute cases, the return time ranging from 30 to 90 minutes, apparently varying in proportion to clinical acuity—again indicative of hypo-oxidation trend, of hepatic locale and thus checking, from another angle, the deviant blood fat and sugar tolerance reactions, the hepatic factor being established as of great importance in the matter of the proper metabolization of these food elements. Of special interest in this connection is the report of Rolleston²³ indicating an especially high incidence of biliary stasis and calculi among the insane.

Basal metabolism determinations were carried out upon 11 cases, including two adjusted and nine acute types, employing in this work, the Tissot spirometer, and the Haldane technic for gas analysis. No apparent deviation was noted in the adjusted cases, but there was indication of slight diminution in all but two of the more acute forms varying from 4 per cent to 10 per cent, and, in one particularly acute catatonic case, 30 per cent, in which also the oxygen combining power of both the arterial and venous blood was much decreased. No definite change in basal response was observed as regards reaction to pituitrin or epinephrin, save in this extremely acute catatonic case, just mentioned, in whom the increase in basal rate following epinephrin was much less than in the normal 7 per cent as compared to 20 per cent. Our findings over this series were not wholly satisfactory or com-

0.21
0.20
0.19
0.18
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
Blood Sugar Percent

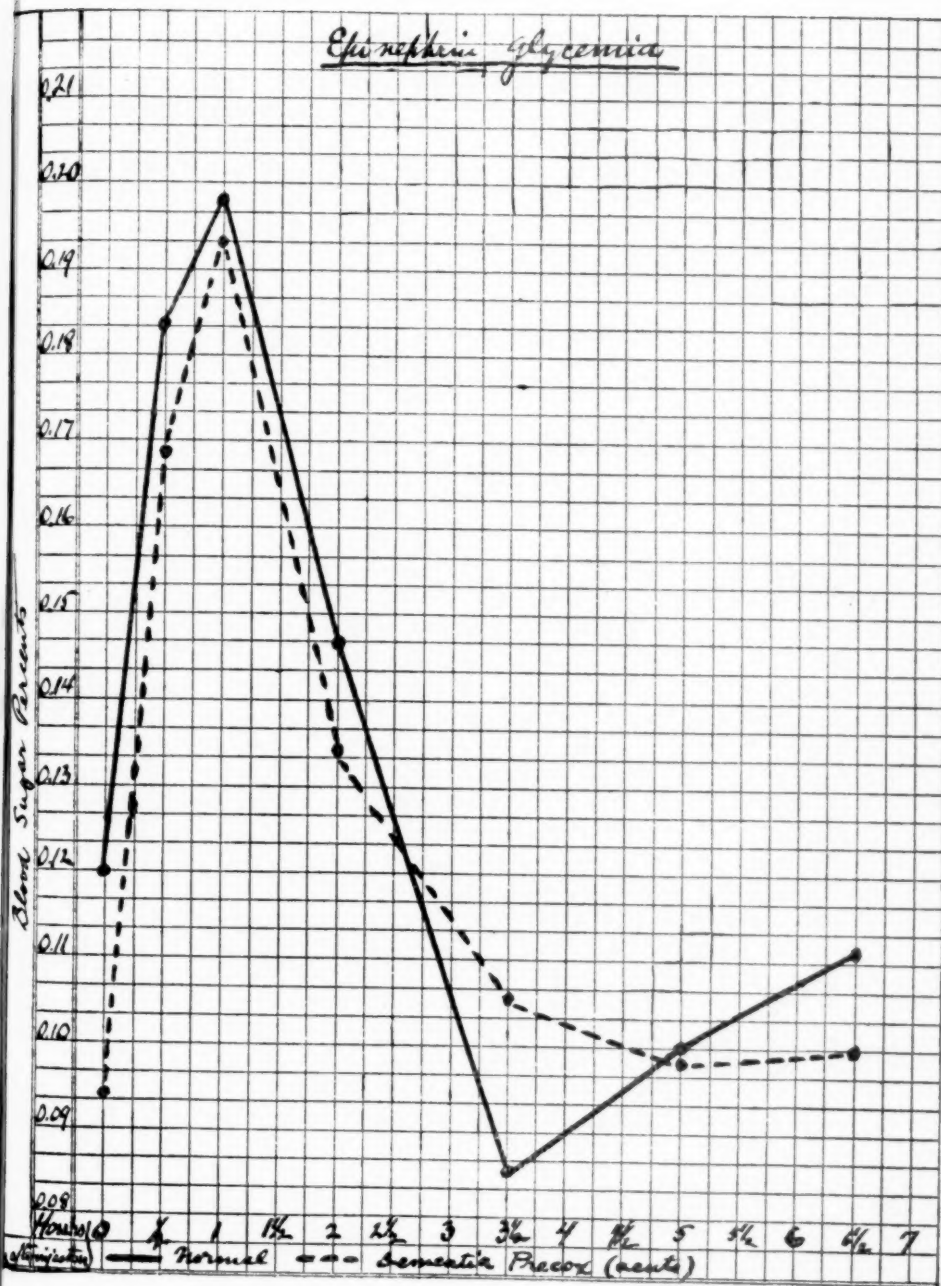
Epi nephric glycosuria

FIG 2.

pletely indicative, inasmuch as only the quieter and more co-operative types could be used, but, at any rate, indication is afforded of a certain basal depression made more definite through the confirmatory findings of Grafe and Bowman as mentioned.

Erythrocyte fragility, to graded strengths of saline (.5 per cent-.275 per cent), according to the technic of Butler as modified by Greenthal and O'Donnell²⁵ was also studied. Of a series of 95 unselected dementia præcox cases tested a year ago a total deviation of 50.6 per cent was determined and in the present series including 36 cases of which 23 were definitely in the acute or exacerbative phase, 87 per cent of the latter showed slight to moderate decrease in red cell resistance. The adjusted cases showed no essential change. This finding is of especial interest, as in other work, Greenthal and O'Donnell²⁶ report the same type of deviation in invitro studies of blood samples treated with carbon dioxide and in the bloods of cardiac patients showing marked circulatory stagnation, *i. e.*, bloods deficiently oxygenated.

In summing up, therefore, we have indication, first, of definitely variant status physiologically in the acute and exacerbative phases of dementia præcox, as compared with the so-termed adjusted types, who, aside from certain residua, perhaps, such as persistent initial hypoglycemia and glandular features, seem to show no essential departure from the normal. In these acute or clinically active cases this deviance is manifested through delayed sugar tolerance indicative of disturbed glycogenic and glycogenolytic functions, altered epinephrin glycemic response, relative hepatic hypofunction, relative hypolipemia, evidence of depressed basal metabolism and increased red blood cell fragility, findings in their ensemble, definitely suggestive of a basic hypo-oxidative status, a state of general metabolic depression, strikingly in confirmation of discreet reports by other workers, as indicated. In addition, we have the fact of determined autonomic instability or dysfunction, also called attention to by other investigators and predominantly of the vagotonic order, which, according to Timme and others,²⁶ is so apt to be associated, secondarily, with adrenal, thyroid, pituitary, and hepatic disorder, with clinical manifestation, therefrom, of monoglandular, compensation, or polyglandular syndromes. That we have such endocrinic reflection has been indicated in the

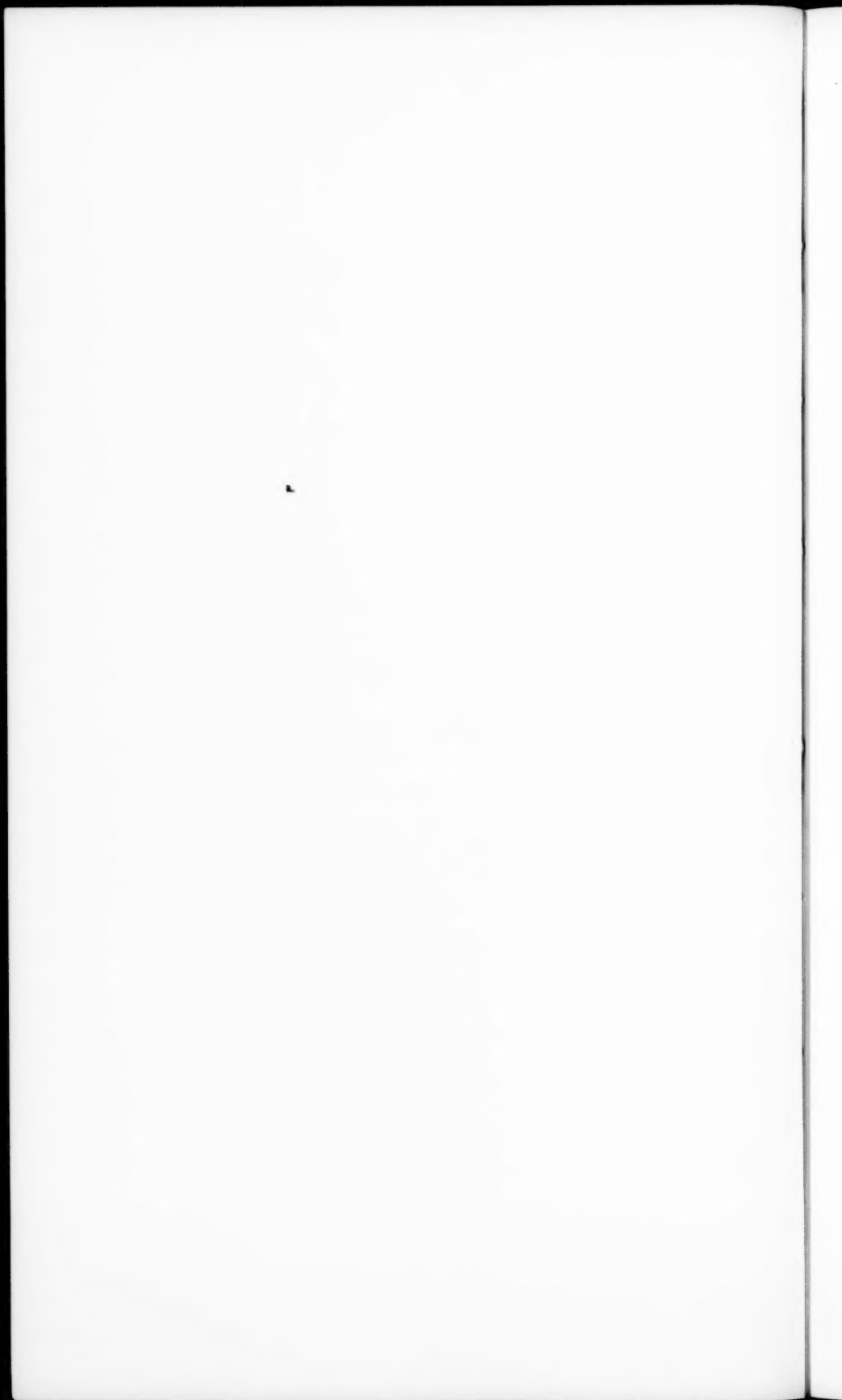
discussion of the literature and by our own findings, as mentioned, as regards intrinsic hepatic insufficiency, initial hypoglycemia, deviant epinephrin glycemia and diminished basal rate. This autonomic control, Cannon²⁷ feels is essentially of mid-brain locus and, in this sense, the disorder may conceivably represent reaction to ex- or endotoxiosis, or other intrinsically neuro-organic situation, to which the metabolic change may be secondary although this is admittedly hypothetical, just as logical is it, that the endocrine situation may be the fundamental one, whatever its basis. The specific significance, too, of the determined deviation in metabolic function is definitely speculative, *i. e.*, as to whether it is primary or secondary to the vegetative disturbance—in all probability the association is one of essential concomitance. The matter of physical or psychic primacy is also of interest, but as yet more or less obscure, although, inferentially, one might postulate a certain somatic vulnerability as regards the endocrino-autonomic field, which, under the stress operative upon the psychic level, may become clinically manifest as described. At least, this seems plausible in view of the marked amelioration determined upon conflict subsidence and the frequency with which endocrinic stigmata are determined in *præcox* types. As to differences in reaction among the basic type in *dementia præcox*, there seems to exist no definite distinction among the really acute forms, although it might be mentioned that the long drawn out, somewhat atypical, paranoid states seem to show practically no deviation, as remarked also by Hayaschi.

In conclusion, then, it seems from this and other studies that there occurs in *dementia præcox*, with essential consistency, a definite hypo-oxidative status, physiologically, with general metabolic depression and associated with vegetative features, most marked in the acute, unadjusted or exacerbative phases, and by that token probably reactionary or associative, although, no doubt, frequently superimposed upon a structure initially vulnerable. Finally, it should be emphasized, we are not specifying in this a somatic or organic basis for *dementia præcox* as such but merely bring into view data from an important avenue of approach which should at least prove of interest in that broader correlation which is so absolutely essential to valid psychiatric conceptualization.

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A STUDY OF THE MECHANISM OF OBSESSIVE-COMPULSIVE CONDITIONS.*

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The present study, including a group of 86 patients, all of whom showed the development of well-marked phobias, compulsions or obsessions, was undertaken primarily to investigate the specific factors producing these conditions. The outstanding feature is the invariable presence of a degree of insight: while the patient feels frantically driven by and at the mercy of his fancies and these fancies have the quality of being forced upon him from without, he has full realization of their absurdity or unreality. Consequently he seldom actually carries out the desires which come to him, but is held in a frenzy of suspended activity on the one hand pushed by desire, and on the other hand inhibited by the consciousness of its emptiness. Further, there is rarely, except in conditions of extremely long duration, any appreciable devastation of the individual personality.

While these conditions have been variously described and named, the two most important conceptions dealing with the underlying mechanism, are those of Janet and of Freud. Janet includes in his group conditions which lack obsessions, compulsions, and phobias, but are characterized by the predominance of indecision, unreality feelings, and a multiplicity of symptoms arising from feelings of somatic insufficiency. As the basis of the disorder he emphasizes the *asthenia*, weakness, or "lowering of psychological tension." The Freudian concept on the other hand, brings to the fore the forced or compulsive character of the symptoms which are explained as "symbolic reactivations of childhood self-reproaches for sexual performances or tendencies." According to this concept, the indecision resulting from an obsession or phobia is really due to the early exaggerated divorce between hate and love so that the conflict and antagonism between

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the two dominates the most important reactions. The psychasthenia of Janet's concept seems to me to give an incomplete picture or notion of the extraordinary energy and tension which is met in the obsessive-compulsive conditions and especially in the panic tantrums which arise from them. In the present study the term "substitutive tension state" is used as more accurately descriptive of the group of cases here examined, the mechanism being akin on the one hand to the affective tension states of the depression and anxiety neurosis; and on the other to the blander substitutive-amnesic reaction of hysteria.

Two main issues arise in the examination of these cases: (1) The possible existence of the forerunners of the full-blown reaction, especially in the make-up, life situations, and (2) the mechanism of production of the specific symptoms. In reviewing the whole number of cases I found that these psychoses are most apt to develop in people with fairly definite social awareness, coupled with an acute sense of limitation or inferiority, the latter having either a personal or a situational origin. Very rarely, however, was there any intellectual inferiority. Between one-quarter and one-third of the total number were people who had reached colleges or professional schools, while only five could be in any sense considered dull. There is, further, in most cases the early establishment of habits of substitution of formulæ or codes (individual or conventional), rituals and compensatory conventionalized activity for the conflicts. (In 64 of 86 patients, such traits were very pronounced before puberty.) In contrast to the shut-in character of the schizophrenic, these patients are moderately out-reaching, sufficiently in contact with the environment to make at least half-hearted attempts at achievement. Rarely content with pure rumination and the make-believe world, they indulge rather fancies which are but elaborations and off-shoots of real experiences, themselves not satisfying. They also show a marked emotional dependence, and sort of emotional infantilism in which they clutch at support, reassurance, and approval from others very much as a child who seeks parental comfort from a terrifying dream. This emotional dependence is, however, an active positive out-reaching to others, a real dependence rather than a withdrawal from environmental contacts. The compulsive-obsessive person is pre-eminently conventional in his aspirations:

the approved standards of religion, law, etiquette, and even education are the ends of his strivings and the measure of his achievement.

In this setting, then, there develops early in childhood, an awareness of inadequacy or inferiority. Conspicuous in the situations producing this feeling are those limiting general social relations; cultural and educational contrasts with the environment, economic obstacles which seem to set the person aside from others of his age, and of course most conspicuously the real or fancied sex inferiorities. Among the situational obstacles, I would call attention especially to the frequency of the sensitiveness of the young girl to alcoholism in the father or mother, so that there early develops a dread or shame reaction in respect to the home, in conflict with the social desires for free association with young people.

Obsessive-compulsive states arise usually during the active striving periods of the life, and only rarely occur during the latter years. Usually the patient presents himself for treatment between the ages of 16 and 40. In our group acute symptoms began most frequently between 21 and 25. This is rarely the onset of the disorder however for two-thirds of the patients gave a history of similar, earlier, milder disturbances. Sometimes these were in a definite chain relationship, one leading to the other; sometimes they were relatively discrete episodes occurring in unrelated situations. Commonly when the patient presents himself for treatment, he gives a retrospective account of phobias, obsessions or compulsions beginning before puberty; but is at present in an acute tension state growing out of the immediate situation. The earlier symptoms may be part of a series or progression of which the present crisis is merely a culmination, a gradual growth in the direction of trends of suppressed conflicts; or, even when the content of the present obsessive or compulsive activity is unrelated to that of earlier symptoms, the fact still remains that the apparently disconnected outcroppings are evidence of the formation of a mental habit, a growing reaction tendency in meeting conflicting needs and desires.

Against this it may be argued that most children have definite phobias and rituals; that these are in fact so common in children and that severe obsessive-compulsive tension states are relatively

so rare in adults that they can have little more than chance association with the adult psychoneurosis: the only difference being that the sick adult, looking back, scrutinizes his past for symptoms and recalls many which the healthy adult forgets or at least has no occasion to display. The question of whether there is any distinctive "anlage" in the childhood make-up and habits of the individual which forms a good foundation for a later compulsive reaction, brings one to several issues, (1) are phobias, obsessions and compulsions actually common in childhood, (2) when they occur, do those of normal children differ in any way from the prepsychotic manifestations of the potential psychasthenic, and (3) what is the significance of any differences? With these points in view, I compared the accounts of normal people with those of our patients. The material from normal people was obtained from the histories offered by members of the staff and a few students. Of 30 who undertook such a review of their childhood, there was only one person who denied any phobias, obsessions or compulsive activities in childhood, although none is at present, or has been in adult life, phobia ridden or distressed in any measure comparable to the psychoneurotic. The content of these childhood reactions was on the whole rather different from the conspicuous childhood phobias of potential patients. Among the reactions of normal people there were a large number of group or family rituals. One person reports a tree touching ritual en route to school, which was indulged in by a group of children. This had sufficient compulsive force with the individual so that he was uneasy if he omitted it. It had a definite group value, however, and was incorporated into the play activity of the children. Similar to this are the stepping-on-crack prohibitions which are almost universal among children in this country, and are expressed in the childhood saying: "Step on a crack, and break your mother's back!" Somewhat similar to these in their social acceptability among a group are the family and religious prohibitions. A number of people, however, report individually developed rituals and phobias. Among the most conspicuous are the toilet formulæ of various children. One person reported that he must spit in the toilet after urinating; another that he had a definite cleansing procedure after defecating, variation from which caused him uneasiness. Allied to these are the eating

formulae often observed among young children, not only the seemingly unreasoning prohibitions in regard to certain foods, but the definite arrangement of food in eating. A three-year old child of my acquaintance would not eat unless his food was arranged on his plate in a specific fashion, and then had a definite order or program in eating, quite contrary to the training desired by the parent. While the exact origin of these rituals is usually quite lost to the adult reporter, their general significance and value to the individual will be discussed later in comparison with the consideration of the mechanism of production of obsessive states.

The present case material showed three stages in the development of a profound obsessive-compulsion or phobic condition. First there is the simple balancing of a wish with the fear of the consequences. If either wish or fear grossly predominates, the course of action may be determined and the individual goes his way. But if the two are nearly equally balanced, the individual is suspended in a state of indecision and conflict. This is very often the basis of the simple obsession, as in the suicide obsessions, where the desire and fear of suicide are so balanced that the patient is haunted continually by the thought although aware that he has no intention of killing himself. One of the most dramatic illustrations of this type was the case of a minister of 54. (R. H. B.)

who came to the clinic in 1914, with the complaint that for three years he had been obsessed with thoughts of profane words. These impulses to say or sing profanity were particularly strong when he really wished to preach, pray or sing hymns. This had become so distressing that he had dropped his church work and retired to live entirely on his farm. The following year, 1912, was spent reading in the libraries in Washington, where he was unmolested and less distressed, but subject occasionally to apparently uninvited thoughts of what a shame it would be if he should wander off and become a villain. The next year at home he was worse and again found himself with impulses to say "Damn it—to hell," or to sing "Dim-Dam-dimmit, dammit" to the tune of some hymn.

The forces of this balanced wish-and-fear state are apparent when we look into the similar adjustments which he had been attempting throughout his life.

As a boy he was frail, undersized, and considered delicate. He was spoiled by four maiden aunts, who made much of his intellectual precocity,

and helped to develop in him a conceit and laziness which hid his physical infirmities. In college he hoped to become a lawyer as he was "such a talker," but was influenced to the ministry by a beneficent bishop. Of his sex life we know relatively little: There was a period of masturbation at 12; a few incidents of hetero-sexual contacts in college, and an engrossing attachment to another boy, an exalted David-and-Jonathan affair. He was engaged at about 22, but the engagement was broken by the girl because of the insanity in the family (grandfather, great grandmother, half great aunt insane). On entering the ministry at about this same time, he resolved to live on a plane above sex; and at this level he attempted marriage at 26. After 11 years, during which he had three children, he developed anxiety symptoms; weakness, fears that something would happen, apprehension of insanity, with bewilderment, consternation and depression. He had not entirely recovered from this state when after 18 months his wife died. This was a great shock to him and he was quite at sea. After two more years (*at 41*) he relapsed into more profound state of prostration and apprehension from which he rallied to begin his second marriage at 42. In this marriage sex played a much greater rôle. During the years of this second, more sexual union, he began, however, to have religious doubts, took up higher criticism and archæology, was confused about the harmony of religion, philosophy and science. Finally at 51, he bought a farm and gave up active church work, though still doing missionary work and preaching occasionally. Not even here, however, could he retire to the satisfaction of his conflicts, for almost at once on the occasion of seeing two mules chasing a heifer, he felt the impulse to shriek out "Damn it to hell." This he cautiously suppressed and said only "Confound it," because of the presence of his son. Then followed the tormenting obsessions to sing and preach profanity—the indulgence in which would have satisfied his desire to be rid once and for all of his ministerial restrictions and have wrecked his life by creating hideous public scandal.

It is obvious that similar $\frac{\text{desire}}{\text{fear}}$ situations with resulting distressed indecision or fluctuating activity may occur quite normally if the situation is relatively urgent. The bank clerk experiences it if he is in need of money and covets a portion of what he is handling. He then becomes uncertain of the security with which he has locked up the money, even though he recalls turning the key in the lock quite safely. Among nurses in psychiatric hospitals, impressed with the burden of continually locking doors and cabinets and the danger involved in an oversight, I have heard a number tell of feeling obliged to return to their wards to be sure everything is safe, even though they felt reasonably sure they had arranged things satisfactorily before

leaving. Such states are rarely prolonged or serious because they are apt to be discrete, have few connections with other conflicts in the individual's life; and also because in their very nature they are transitory, eliminated or cared for by changes in the provoking situation.

A second type of mechanism utilizes the associative and substitutive capacities of the individual so that instead of the original desire situation being reproduced in the obsessive state, the fear conflict is unloaded upon some associated object or experience which then bears the burden of the original affect. This reaction is seen in its simplest laboratory form in the "conditioned reflex" of psychological and physiological experiments.

We are all familiar with situations in which we dislike one object because it is associated with a painful or disagreeable object or experience. Food dislikes seem often to be on this basis as well as apparently unreasonable aversions to certain names. I would emphasize, however, that in our patients the substitution of the associated object for the original wish occurred most frequently after the original association had been reinforced by recurrent episodes in which the substituted object served as a common unit, as seen in the following two cases:—

I. The appearance of this mechanism in an obsessive development was quite clear in one of our patients (E. L.) who came to us with a severe phobia for bichloride of mercury tablets which was so prohibiting that she remained entombed in her room for two years rather than venture on a street where she might pass a drug store containing bichloride tablets. Later she limited her food to clear liquids as she could take them through a glass tube and so avoid hypothetical bichloride tablets in the bottom of the glass. This bichloride fear developed in a situation in which the patient, then a 19 year-old factory girl had been aroused by the knowledge of the discharge of another girl for an illicit pregnancy. At work in the factory she continually looked over into the houses across the street which were reputed to be houses of prostitution. She day dreamed about herself as attractive to men and both desired and feared illicit sex relations. She read in the newspapers of the suicide by bichloride of a girl illegitimately pregnant, and she saw bichloride being used extensively in her sister-in-law's home after the birth of a child. The bichloride then became the object of unreasoning prohibition although originally but a neutral factor in significant situations.

II. Another patient, (R. C.) a young woman of 31 was admitted to the hospital in a condition of extreme panic lest she had lost some papers.

Wherever she went she was obsessed with the thought of having dropped papers from her handbag or clothing. She had daily to retrace her footsteps, check up her activities and shake out her clothing repeatedly. During the course of her illness there were many other distressing symptoms, but this one continued most conspicuous. It was found that the form of this particular obsession was determined by an incident occurring during the patient's college days. In an effort to orient herself concerning the facts of sex life, she frequently consulted an encyclopedia, always surreptitiously and with shame. After one of these encyclopedia excursions, she found on returning to the book to look up some other topic, that she had left a paper in the book at the place she had been reading. The fear of the betrayal of her childish curiosity caused her thereafter the greatest concern to remove all tell-tale papers when she subsequently consulted the dictionary. This fear of papers which might betray her was later reinforced and spread to other situations when the patient became involved in a clandestine attachment to her mother's chauffeur, during which she surreptitiously read the letters from this man to her mother. She was constantly afraid she would be found with these letters in her possession or that she might lose one. She then found it necessary to look carefully into all her own letters before sending them lest she might have unwittingly enclosed one of the chauffeur's and so make known her interest in him; and simultaneously there was an extreme exacerbation of the original fear of losing a paper or a letter.

The third type of mechanism consists in the substitution of a symbolic object or ritual for the original $\frac{\text{desire}}{\text{fear}}$ situation. It serves somewhat the same purpose as the second mechanism to the patient of eliminating the fundamental and intolerable conflict and replacing it with something apparently innocuous which bears the brunt of the conflict, a scape-goat to carry the sins into the wilderness. One of the most common forms of symbol substitution of this type occurs in the germ phobias where the germs stand as symbols of sexual uncleanness in masturbation. Hand-washing becomes a cleansing then for sex activity or even sexual thoughts. The number rituals appear usually to be of this sort.

Thus one of our patients, a young woman of 28, avoided the number 3 because it was a symbol to her of three parts of the male genitalia about which she had a much delayed and intensified curiosity. At the same time she suffered from a far reaching tuberculosis phobia, had hand washing compulsions; and an extreme fear of blood which she identified in her childhood ruminations with seminal fluid.

In this mechanism with the projection of the conflict onto neutral symbolic topics which are then avoided, the distortion is the most

far reaching, and the process is more likely to involve a number of objects, one being substituted for another, until all connection with the original disrupting situation is lost.

Since all of these mechanisms *may* occur episodically, and without particular disaster in the normal individual since it is obvious that we are all confronted with desires the results of whose gratification we fear; with associations of neutral and strongly disagreeable stimuli, and have at hand symbols in which we may cloak our conflicts, it is obvious that in the recognition of the mechanism alone, we do not explain the production of the substitutive-tension. Why are we not all sufferers since we must be subject to a multiplicity of "conditioning" factors? What determines the persistence of certain obsessions and fears and the apparently natural disappearance or dissolution of others?

Examination into the content of the obsessions, phobias, and compulsions of these patients here gives us much help. We find upon such scrutiny, that the subject of the obsession is invariably a wish whose gratification meets social condemnation. Thus it is almost inconceivable that anyone except a minister could develop an obsessive desire to be profane, like our patient R. H. B. Obviously sex impulses furnish situations in which the individual desire is most likely to run afoul of social disapproval or condemnation. Conspicuous exceptions to this are to be noted especially in the suicidal and homicidal obsessions: parents who are obsessed with the intolerable thought of killing a child, whose birth has been unwelcome, or whose presence blocks the complete gratification of the parent in other ways, as was the case in four of our patients; or the situation may be reversed so that the child becomes obsessed with the thought of the death or safety of the parents who are restricting and burdensome. In the sex realm, the personal desire
fear of social disapproval is most apparent. The following case, given in some detail, illustrates this especially:

A chauffeur of 24 (I. L. C.) came to the dispensary first complaining of headache and an insistent desire to immerse himself in cold water. This latter was so pronounced that he actually took many cold baths a day—after each feeling cleansed, reassured and fortified; only to fall quickly again into despair and demand for further cold bathing. The feeling of relief after the bath, he likened to his feeling after baptism at 12. Further investigation showed that he had always been religious in

a formal, punctilious fashion. After his satisfactory baptism at 12, he had shown increasing zeal in his church attendance, until at 17 he sometimes attended four different services in one day, and was one of the leaders of the young people's society—a fact with which he later consoled and fortified himself. At the same time, he was increasing his sex experience as rapidly as possible, with an urge which on the face of it, would suggest more than simple adolescent curiosity. Apparently, for the time being, his promiscuity and his religious leadership clashed but little and he was proud rather than ashamed of his sex exploits.

At 20, he went to work as chauffeur for a wealthy man, who was reputed to be a homosexual dandy. This, however, did not reach the ears of the patient for some time. After he had worked here for three years, however, he was approached one day by the negro butler, who suggested that the patient should enter into a fellatio relation with him. The patient refused but could not let the matter drop. It worried him constantly, especially as he began to wonder why the butler had taken him for that sort of a man. The butler ridiculed him, told him of their employer's habits, and suggested that the patient lacked acuity in not making the most commercially of his possible relationship with his employer. The butler excused himself for his own homosexual life by explaining that he was "born that way," owing to the prenatal influence of his mother who had not been sexually satisfied during the pregnancy. The patient then became tense, and worried over the idea that people—and especially he himself, might have been born homosexual. While in a cold bath he suddenly recalled how clean and pure he had felt after his baptism at 12. He then felt that he must duck his head under water in order to purify himself. After this whenever he was worried or in trouble, he felt the need of immersion. He continued in this fashion for about a year, *i. e.*, until six weeks before he came to the dispensary. Then, after another talk with the butler it abruptly came over him that it was probably true that he himself had been "born that way" (homosexual) as he suddenly recalled that at the age of five he had had a fellatio experience with a colored boy. He then went to pieces, gave up his position, was unable to work, was worried, tense, restless and continually alternated between considering suicide and reassuring himself by self baptism.

We have here a patient who was early sensitized to and diverted toward homosexuality by the determining fellatio experience at five, which obviously left its sting of concealment and inferiority feeling, although the experience itself was suppressed into forgetfulness. During his adolescence, he made various attempts at proving his own competency both in righteousness and virility, his overt behavior in both directions showing extraordinary drive and urge. At 20, he engaged himself to work for a notorious homosexual, but for three years succeeded in blinding himself to

his employer's activities. As long as he maintained this defence against himself, he drifted satisfactorily. With the actual proposal of the butler, however, his defence crumbled; and his actual homosexual desires were rekindled. The nagging conflict of his life between the desire for homosexual relations and the horror of homosexuals as social outcasts was at once precipitated, and the patient felt the need of fortifying himself many times a day by a baptism which at 12, had introduced his efforts at religious compensation.

The fact that the individual urge or demand is balanced against the fear of social disapproval in the event of gratification tends enormously to intensify and perpetuate the conflict by actual repetition. One of my associates told me of a strong fear of cats which rises up ridiculously whenever she meets a cat. The cat fear can hardly be said to have driven her into a psychasthenic state, as she never thinks of it except in the presence of the cat. The gratification of her aversion leads to no pronounced social disapproval, nothing more marked perhaps than its remark as an oddity or personal peculiarity. If, however, the cat fear in itself were something whose betrayal she must guard against as something out of harmony with general social aims, the effect would be to very much enlarge her fear and make it the basis of obsessions. Another person reports that he has a marked aversion to certain sea-food which he believes is due, in part at least, to actual protein sensitivity as he has been made ill on the few occasions when he has unwittingly eaten of it. This inferiority does not, however, cause any severe mental disturbance. Occasional inconvenience or embarrassment results from his aversion. When this is contrasted, however, with the situation of our patient I. L. C. (whose case has already been given) who for years conceived of himself as organically inferior, and a candidate for ostracism as a homosexual, we can understand the intensity of his reaction when he seemed in danger of betrayal by being confronted with actual homosexual temptations.

To return to a consideration of the compulsive childhood traits of patients and of normal individuals, we find in fact, that those which are in keeping with the group, as the play activity of children, or the traditions and superstitions of the family or religious group, cause no intensified sensitivity and leave no

disaster in their wake. Among the individual superstitions and rituals (as in contrast to the group) the conspicuousness of the toilet formulae is an interesting indication of the relative importance of the eliminative functions in the child's life, fields in which social prohibitions and consciousness are early aroused.

CONCLUSIONS.

I. In a group of 86 cases the obsessions, phobias and compulsions appeared to take place in three ways:

(a) The balancing of a simple wish against fear of the results of gratification (usually where the personal wish is in conflict with the social demand).

(b) The transference of affect from its genuine source which is repressed because of the revulsion aroused, to some neutral associated object or topic which forms a part of the original situation and is then avoided or dealt with *as though* it were the total experience.

(c) The substitution of a symbolic thing or action, for the original wish against fear conflict.

II. The obsessive-compulsive tendency in the management of life situations usually begins early in the individual's life; adult psychoses of this character usually being preceded by a variety of similar, less florid symptoms arising from early childhood experiences. These may be in themselves, the beginning or source of the adult reaction, or may lay down a reaction pattern or tendency.

TYPES OF WORD-ASSOCIATION IN DEMENTIA PRÆCOX, MANIC-DEPRESSIVES, AND NORMAL PERSONS.

By GARDNER MURPHY.

TABLE OF CONTENTS.

	PAGE
History	539
Problem	542
Acknowledgments	544
Procedure	545
Analysis of Material	546
A. Classification	547
B. Types of Association	553
C. Comparison with Children's Associations.....	563
D. Correlation Methods	567
Conclusions	570

HISTORY.

The experiments published by Galton¹ in 1879 on the "Association of Ideas" led in 1880 to Wundt's inauguration of the familiar "Free Association" experiment, in which a series of words is shown or pronounced to a subject, who responds in each case by the first word suggested to him by the given word. This experiment was shown by Walitzki² (1889), Sommer³ (1890), and Kraepelin⁴ (1892) to have value in the exploration of mental disturbances, and in the differentiation of clinical types. In this early work, the chief uses of the method were (1) the measurement of association-time, and (2) the classification of associations into various types—such as the "contrast" association (*e. g.*, the stimulus-word *good* evokes the response *bad*), the "rhyming" association (*e. g.*, the

¹ Psychometric Experiments, Brain, Vol. 2.

² Contribution a l'étude des mensurations psychométriques des aliénés, Revue Philosophique, Vol. 28.

³ Lehrbuch der Psychopathologischen Untersuchungsmethoden.

⁴ Ueber die Beeinflussung einfacher psychischer Vorgänge.

stimulus *money* evokes the response *honey*), etc. Another method was later developed by Jung and Riklin:⁵ the analysis of individual associations, in order to understand particular pathological processes (especially mental conflicts) underlying them—where, for example, a *complex* may reveal itself through a response in the form of a significant proper name, etc. Several other uses of the association-test have been evolved, among which may be named that offered by Kent and Rosanoff⁶ in 1910, following an earlier suggestion of Sommer's, by which the responses of one thousand normal subjects to one hundred stimulus words were recorded, so as to ascertain how common or how rare a given response to any one of these stimuli might be. For example, the stimulus *lion* evoked from 326 normal persons the response *animal*, from 27 the response *mouse*, but from only 1 the response *mule*. All four of the methods named, and several others, have yielded such a mass of significant results that even a summary would be impossible here. The present contribution, therefore, in dealing chiefly with the *types of word-association* does not aim to disparage any other method of approach, but primarily to develop this one method and apply it to new material.

It was believed by Sommer⁷ that types of mental disorder are so regularly reflected in various specific forms of word-association that the association-test could be made an accurate method of differential diagnosis. He undertook, for example, to show characteristic differences between *manic* and *catatonic* subjects. Instead, however, of collecting extensive data, he laid down certain principles and offered the reader a few illustrations—a method scarcely suited to establish a point in which large differences in association between individuals belonging to one pathological group are to be expected, and in fact have frequently been found. His principle, however—the differentiation of groups by study of types of association—was successfully applied by Kraepelin,⁸ Aschaffen-

⁵ Diagnostische Assoziationsstudien, Jour. für Psychol. u. Neurol., Vol. 3, 1904.

⁶ A Study of Association in Insanity, AMER. JOUR. OF INSANITY, Vol. 67, Nos. 1 and 2.

⁷ *Op. cit.*

⁸ *Op. cit.*

burg,⁹ and Wahle,¹⁰ to groups subjected to alcohol, fatigue, and hunger, respectively. That is, the studies showed that certain *types* of association became much more *prominent* in persons subjected to these influences, but fell far short of results which would make possible the detection of these influences by use of the association-test alone. A number of such studies of groups by the association method have been made in the present century—resulting in the discovery of certain general tendencies which differentiate groups, *e. g.*, differences due to age, sex, etc.,—but seeming to indicate such large overlapping between groups (whether normal or pathological) as to make clear-cut differentiation difficult or impossible.

As regards the differentiation of various familiar clinical types, Aschaffenburg¹¹ found a fairly consistent tendency in *manic* patients to give associations of a "superficial" type, such as speech-habits and sound-associations—conclusions supported by the work of Isserlin;¹² and the early postulate of Sommer¹³ as to the frequency in *dementia præcox* of irrelevant responses (such as *angel-spider*), and the tendency toward monotonous iteration of the same response, irrespective of the stimulus, has been confirmed by several investigators.) Even in such studies, however, we find exceptions, overlapping, and the occurrence of association-records which might plausibly belong to various clinical types. The largest mass of material so far collected for study by any method of *association-types* is that of Kent and Rosanoff.¹⁴ The method of classification used by these investigators differs so widely from those ordinarily used that it would be unwise to make a direct comparison of their results with those of others, but these authors express a judgment which is a fair summary of the status of the *association-type* method. "Thus the test records of *dementia præcox* depart from the normal not sharply but by a gradual shading off. We find similar gradual transitions between dementia

⁹ Psychologische Arbeiten, Vol. 2.

¹⁰ Bemerkte zur Beschreibung und Eintheilung der Ideenassociation. V.-schr. f. wiss. Phil., Vol. 9, 1885.

¹¹ *Op. cit.*

¹² Die diagnostische Bedeutung der Assoziationsversuche, Münchener med. Wochenschrift, No. 27, 1907.

¹³ *Op. cit.*

¹⁴ *Op. cit.*

præcox and other psychoses. . . . Whether or not in cases of doubtful clinical classification this association-test may be of aid in determining the diagnosis is a question that must for the present remain open." (p. 30.) "By the application of the association-test, according to the method here proposed, no sharp distinction can be drawn between mental health and mental disease;" (p. 72.)

It must be remembered that this generalization applies not only to the association-type method but also to the method referred to above, by which we ascertain the commonplaceness or rarity of the associations given by a patient. There is every reason to believe that the uniformity of results in group comparisons is due not to errors of procedure but to real overlapping of the groups. In fact, the evidence is strong that mental conditions do not always clearly reflect themselves in types of word-association, and that psychopathic groups, though sometimes differing in central tendencies, frequently show overlapping with each other and with the normal. Kraepelin¹⁵ expresses the situation as follows:

The associations of our patients, in so far as we are not concerned with differences in the formation, deviate in general remarkably little from those of the healthy. This is explained especially by the predominating rôle which the speech maintains for the fate of the experiment. What is expressed in it is chiefly the crystallization of the habits of speech, which are little influenced for the most part by disease, comparatively speaking. Of course, it can be shown naturally that, in the demented patients, a greater poverty of ideas and uniformity in the results of experiments occurs, so that frequently senseless answers, repetition of the stimulus word, misunderstandings and denials occur, also adherence to the same answer is seen. Apparently the only disorder in which the associations show a characteristic change is the *manic* excitement. In these cases for the most part the tendency to clang associations comes out very distinctly, especially rhymes, citations, and word completions, which may finally surpass all other forms. Evidently certain relations with the pressure to talk exists, which moves the speech elements of the ideas into the foreground.

PROBLEM.

The successes of the association-type method, together with its failures, present a very complicated situation in which it seems

¹⁵ The Signs of Mental Disorder, Alienist and Neurologist, Vol. 40, 1919. (Translation by H. I. Gosline, M. D., from "Clinical Psychiatry.")

desirable to make a very *extensive* study of types of word-association in at least one or two common mental disorders, comparing these with the normal, and using a mass of material sufficiently large to make clear whether the method has any usefulness beyond that recognized by such authorities as Kraepelin. In particular, a comparison of cases classified as "dementia præcox" or "schizophrenia," with cases classified as "manic-depressive psychosis" or "benign affective psychosis," seems needed. (The present study is an application of the association-test to three groups: normal, dementia præcox, and manic-depressive.)

A preliminary attack upon this problem was offered by the present writer in the *AMERICAN JOURNAL OF INSANITY*, Vol. LXXVII, No. 4, April, 1921. Three fairly consistent differences between a group of dementia præcox cases and a group of manic-depressives were named. These differences were of the "overlapping" type, and were moreover based on such a small quantity of material that the writer expressed great uncertainty as to whether these differences were really characteristic of the psychotic groups, or due merely to accidental distribution of a small number of cases: "Whether or not the apparent differences between dementia præcox and manic-depressive psychosis noted in this paper are of genuine significance can best be determined by further study with the Kent-Rosanoff list. Other differences may be found with other lists, and the same differences might appear using other comparable stimuli; but the next step, it is believed, should be the application of these methods, with the Kent-Rosanoff list, to larger groups." Accordingly, much more extensive data have been collected, the methods of the former study being followed, and new methods added as well. The main results of the previous study will be reviewed in connection with the results from the larger material to be presented in the present study.

The pathological data comprise 51 cases of manic-depressive psychosis and 48 cases of dementia præcox, distributed as follows:

DEMENTIA PRÆCOX.

Paranoid form	34
Hebephrenic form	7
Simple form	1
Unspecified	6

MANIC-DEPRESSIVE PSYCHOSIS.

Manic form	25
Depressed form	8
Mixed forms	11
Perplexity	1
Circular	2
Unspecified	4

It will be noted that the dementia præcox group is overweighted with paranoid cases, that no cases of catatonia are included, and that the number of manic-depressive depressions is small in comparison with the number of manic cases. These defects are due to the fact that the association-test requires patients who will co-operate to some extent—a condition less frequently fulfilled in depressions and catatonia—and that paranoid forms prove to be especially common in the institutions visited.

The pathological cases were studied at the following institutions: Manhattan State Hospital, New York City (slightly over half the material coming from this source); Brooklyn State Hospital, Brooklyn, N. Y.; Kings Park State Hospital, Kings Park, N. Y.; Essex County Hospital, Cedar Grove, N. J., and the Boston Psychopathic Hospital, Boston, Mass. In each of these institutions the co-operation of the hospital staff was gladly given, constituting an indispensable condition to success. In all cases the official hospital classification was accepted, cases of uncertain classification being excluded.

The normal cases were as follows: 39 female nurses in training at the Manhattan State Hospital; 20 male attendants at Worcester State Hospital, Worcester, Mass., and 2 male attendants at other institutions; 18 boys from the Concord High School, Concord, Mass.; 15 girls from the Washington Irving High School, New York City; 2 male and 2 female students at Columbia University; and 2 male students from Union Theological Seminary, New York City.

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PROCEDURE.

The procedure may be summarized as follows: The "subject" was brought to the experiment room and seated himself at or near the table at which the experimenter sat. The experimenter explained the experiment as follows (more or less variation in phraseology being of course needed to suit particular cases, especially pathological cases, but no essential changes being made): "I am making a study of the use of words. I am going to read a list of words to you, and after each one, I wish you would let me have the first word that comes to your mind. For example, if I should read *dog*, you might say *cat* or *bark* or *bite* or any other word; or, if I should read *watch*, you might say *clock* or *tick* or *second* or any other word. It isn't a question of right or wrong, because any word is as good as any other word. Do you understand?" Then after any necessary explanations, a series of from five to twenty practice words was used, the experimenter endeavoring to eliminate any tendency to repeat the stimulus-word or to reply with more than one word. When he judged that the instructions were grasped and the subject ready to start, he proceeded to a list of one hundred stimulus-words, recording the answers, whether they followed the instructions or not. In a few cases where it was clear that the subject had simply "lost his cue," and was capable of following instructions, he was reminded of them; but most cases of faulty reactions were those in which the tendency to reply with a sentence or a series of words seemed practically ineradicable. The subject was allowed 20 seconds for response. If he made no response or signified desire to pass on to

the next word, the experimenter passed the word and came back to it at the end of the list, allowing an additional 20 seconds for each case, but no third trial was allowed. If, however, he reacted to the stimulus on the first trial, the response was recorded no matter what form it took, and no second trial was given.

ANALYSIS OF MATERIAL.

It has been very generally admitted that a serious difficulty in study of types of word-association is the frequency of the associations which do not clearly fall into any assignable group. If, for example, the stimulus-word *light* evokes the response *lamp*, we have no means of telling whether to regard this as a "subordination" in which *lamp* is taken as a *kind of light*, or as a "verb-object" association in which *lamp* is the direct object of the word *light*. Similarly, *house-mouse* may be a mere rhyme, but it may also be an association founded in the subject's experience. Introspections have been used in some published investigations, but this is especially undependable in pathological cases. There are two practical methods of coping with this difficulty. The first is rigidly to exclude all associations open to serious doubt. If the student is very careful indeed, he can get fair results. But how are we to know that he is right in regarding an association as doubtful? Perhaps some which he excludes would be regarded as practically clear-cut by an enormous majority of investigators, and the exclusion of them may seriously affect the totals. The second method is to have more than one judge in the classification of the associations, and to require unanimity before including any association. Neither method is perfect, but the combination of the two methods certainly helps toward dependable measurement, and is distinctly better than the usual method of leaving all to the judgment of a single classifier, who must find place for all, or nearly all, of the associations under the heading of certain fixed categories. Another expedient which makes for accuracy in classification is the avoiding of all stimulus-words which are vague or ambiguous, or which have been found in experience to give rise to a large number of doubtful associations. This is as much as to say that the problem of classification really begins with the choice of the stimulus-words.

With these principles in mind, the following method was adopted: (1) To preserve continuity with earlier work, the list of stimulus-words was based on the list used by Kent and Rosanoff. But there are in the Kent-Rosanoff list a number of ambiguous words (words which may be taken either as nouns or verbs, and the like), and a number of words which regularly give rise to vague responses. There are, nevertheless, 53 nouns which unequivocally name objective things, persons, or animals. These, together with 22 unambiguous adjectives, were chosen for use. To this total of 75 were added 25 verbs (admitting no forms which are also in use as nouns). This gives a total of 100 words divided between nouns, verbs, and adjectives, presented in the following order:

1—table	21—sweet	41—high	61—send	81—butter
2—dark	22—appear	42—deserve	62—sheep	82—doctor
3—punish	23—woman	43—sour	63—bath	83—loud
4—believe	24—accuse	44—earth	64—cottage	84—thief
5—man	25—slow	45—receive	65—swift	85—lion
6—deep	26—prefer	46—soldier	66—blue	86—injure
7—soft	27—river	47—cabbage	67—hungry	87—bed
8—excite	28—white	48—hard	68—priest	88—heavy
9—mountain	29—beautiful	49—eagle	69—ocean	89—tobacco
10—house	30—window	50—stomach	70—head	90—baby
11—enjoy	31—rough	51—stem	71—stove	91—moon
12—mutton	32—citizen	52—lamp	72—long	92—scissors
13—give	33—foot	53—condemn	73—join	93—use *
14—hand	34—spider	54—bring	74—whiskey	94—perish
15—short	35—needle	55—bread	75—child	95—salt
16—fruit	36—red	56—deny	76—bitter	96—street
17—butterfly	37—come	57—boy	77—hammer	97—king
18—smooth	38—admire	58—insult *	78—thirsty	98—cheese
19—amuse	39—carpet	59—dig	79—city	99—blossom
20—chair	40—girl	60—Bible	80—begin	100—forget

CLASSIFICATION.

After much experimentation with various systems of classification, I came to feel that there is real value in the time-honored system of classification according to logical relations between stimuli and responses, and that, using the precautions named above,

* The words *insult* and *use*, though in the printed form either nouns or verbs, are recognizable as verbs when pronounced.

extensive use could be made of a system in which types of association are thus clearly marked off. The following system was adopted:

1. Contiguity (both stimulus and response naming objective things).
 - a. Stimulus and response name separate things contiguous in space: table-plate, man-hat, butterfly-daisy.
 - b. Response names part of object named by stimulus: hand-finger, butterfly-wing, chair-rung.
 - c. Stimulus names part of object named by response: hand-body, window-house, foot-animal.
 - d. Response localizes the stimulus: table-house, lion-forest, woman-Barnard.
2. Similarity (not including co-ordinates, subordinates, and supraordinates).
 - a. Stimulus and response are synonyms belonging to the same part of speech: deep-profound, soft-fluffy, blossom-flower.
 - b. Stimulus and response are synonyms belonging to different parts of speech (mere changes in word-form are admitted): hungry-hunger, thirsty-dryness, woman-feminine.
 - c. Stimulus and response have distinct similarity of meaning, but not close enough to be called synonyms: smooth-easy, rough-bold, high-above.
3. Co-ordinates (stimulus and response name objects which are members of a common category; stimulus and response must be nouns): mutton-pork, needle-nail, lion-bear.
4. Contrasts (stimulus and response name or imply contrasting qualities; parts of speech are immaterial): soft-hard, sour-sugar, mountain-lowland.
5. Pairs (stimulus and response are nouns paired in common usage, and not clearly classifiable under 1, 3, or 4, but containing elements of at least two of these types. Kent-Rosanoff frequency must be 25 or more): man-woman, hammer-tongs, soldier-sailor.
6. Subordinates (stimulus and response must be nouns): man-janitor, girl-Annie, mountain-Alps.
7. Supraordinates (stimulus and response must be nouns): mutton-food, needle-implement, priest-clergy.
8. Adjective-noun associations (noun-response names object to which stimulus-adjective is applicable as a modifier): soft-bed, short-speech, heavy-dope.
9. Generalizations (noun-response names abstract idea of which noun-stimulus is a concrete representation): Bible-religion, hammer-geology, moon-astronomy.
10. Substance (response names substance of which the stimulus object is composed): river-water, chair-mahogany, table-timber.
11. Qualifiers (noun-stimuli only).
 - a. Adjective-response qualifies noun-stimulus: hand-small, mutton-nice, spider-ugly.

- b. Qualifying adjective changed to noun-form (no response admitted here except abstract nouns formed from adjectives): woman-goodness, hand-usefulness, city-greatness.
- c. Present participle qualifies noun-stimulus: butter-melting, scissors-cutting.
- d. Past participle qualifies noun-stimulus: doctor-needed, baby-loved.
- 12. Verb-predicates (verb-response as predicate of stimulus-noun): eagle-fly, thief-ran, scissors-cut.
- 13. Verb-responses take stimulus-noun as direct-object (any form of the verb admitted): butter-eat, fruit-have, fruit-eating.

NOTES.*

1. If you are not *sure* about an association, ask yourself whether your degree of certainty as to the main class (disregarding letter sub-heads) is better than 50-50. If so, classify it, otherwise mark it U (unclassified). Then, if you are better than 50-50 sure as to a *sub-head*, record it, otherwise simply leave it blank. The main classes are much more important than sub-heads.
2. No account is taken of speech-habits or verbo-motor forms. If an association can be classed in the named categories, it makes no difference how mechanical the association may be. Even Mutt-Jeff and bath-tub are contiguities, while sour-grapes is an adjective-noun association. But associations in which the response merely completes a compound word or a proper name, *e. g.*, black-board, Rocky-Mountains, are excluded. The same exclusion applies in the occasional cases where the response is the *first* part of a compound word or proper name, *e. g.*, House-White. Mere additions of suffixes, *e. g.*, excite-ment, are excluded, while cases in which the stimulus is repeated together with some change in word-form, *e. g.*, excite-excitement, are classed under 2-b. The decision as to whether a word is compound or not is sometimes arbitrary; the practice here followed is to consider *hyphenated* words as *two words*, and therefore to include responses which, together with their stimuli, form hyphenated words, when the association-type permits.
3. Class 1-d includes all those vague contiguities in which the response, instead of naming a specific adjacent object, seems rather to tell where the stimulus object is. Woman-dress is 1-a, but woman-Barnard is 1-d, because we could scarcely say that woman and Barnard are adjacent; Barnard rather tells where woman is.

* These notes were presented to Dr. F. L. Wells of the Boston Psychopathic Hospital with the request that he classify for me 600 words taken by a random sampling from my material. His disagreement—approximately 7 per cent—is somewhat higher than that of judges referred to in the text. This set of notes is intended as a standardization of procedure.

4. Class 5 is meant to include that host of common pairs in which elements of contrast, contiguity, and similarity blend in various combinations—to an extent making necessary their exclusion from all such classes. Hammer-tongs, for example, has some elements of co-ordination, but equally clear elements of contiguity, while man-woman not only includes these elements but a contrast element as well. The rule is to put an association in one of the other classes *if possible*; but if it is a "common pair" (showing 25 or more on the "frequency tables") and not otherwise classifiable, put it here.
5. The difference between classes 7 and 9 is that in a supraordination the response names a class of things more inclusive than the stimulus, whereas in Class 9 the response names an abstract idea. Bible-book is a true supraordinate; but in Bible-religion we cannot say that Bible is a sort of religion; religion is the appropriate general idea associated with the specific stimulus.
6. The difference between classes 9 and 11-b is that in the latter class the abstract noun is a modifier showing the attribution of a certain quality to the stimulus; whereas Bible-religion is Class 9, Bible-holiness is Class 11-b.
7. When a noun-stimulus leads to an adjective-response which is not a true modifier, but merely a change of wording, *e. g.*, feeble-weakness, the association is classed not under 8, but under 2-b. In the same way, weakness-feeble, would not be 11-a, but 2-b.
8. When a noun-stimulus provokes a noun-response naming a substance, it is always put under Class 10, never under 11-a, even when popular speech uses such a noun-response as an adjective, *e. g.*, scissors-metal.

The first step in the classification of associations was to go through the Kent-Rosanoff "frequency tables,"¹⁸ taking all the responses given by 1000 normal persons to those 75 words of the Kent-Rosanoff list which are used in the present study, and assigning these associations to the above classes, or eliminating them as "unclassified." Words which seemed to me open to serious doubt were eliminated, only those words being classified which seemed clearly to belong to the categories named. The next step was to go through the list again with the assistance of two other judges.* These judges made a decision as to each of the associations which

¹⁸ *Op. cit.*

* In the first half of the work, with nouns and adjectives, the judges were instructors in psychology, Department of Extension Teaching, Columbia University. In the second half of the work, one of these judges was unable to continue, and a graduate student of psychology was substituted for him. The number of judges was always three.

the writer had classified.* In an attempt to measure the reliability of my own original decision, a sampling of 1000 associations, taken at equal intervals throughout the total tabulation, showed that in 932 cases the other two judges concurred in my original judgment, and that in 28 cases they agreed as to the main type (*e. g.*, one, four, eleven, etc.), but one or both disagreed as to the sub-type (*e. g.*, 1-b, 2-c, etc.).

The next step was to throw out all associations upon which unanimity was not reached as to the main types. (Cases of agreement as to main type, with disagreement as to sub-type, were admitted; it will be seen from what follows that very little attention need be paid to sub-types, the scores in main types being the most important measure.) This elimination of cases of uncertain association-type resulted in a situation in which a few of the stimulus-words were found to have evoked responses over 50 per cent of which had been excluded, either because of my own uncertainty or because of disagreement of the judges. It is clear that in such cases the stimulus-words themselves are of doubtful value. From the 75 Kent-Rosanoff words, those 25 which produced the smallest number clearly and unanimously classified, were eliminated altogether from use by the classification method. A rough measure of the usefulness of the 50 words retained is given in the fact that the poorest of the 50—the one which gave the smallest number of associations clearly classified—produced, from the normal thousand persons, 615 associations which are thus reasonably certain as to classification, the remaining associations being, of course, excluded.

In the case of the 25 verb-stimuli, also, judgments were made as to each association,† 100 normal persons having given the associations from which similar "frequency tables" were drawn up. The following classification for verbs was used:

14. Verb-subject (noun or pronoun response is subject of stimulus-verb):
come-passenger, perish-soldier, injure-weapon.

* The judges were not informed of my decision until their own had been expressed; but in some cases of disagreement the judges were urged to give their reasons for classification and the various points of view were expressed. This led to unanimity in a few cases, but in most cases no winning-over was possible, the judges holding out for their original decision.

† Two of the three judges had taken part in all of the work with nouns and adjectives; the third was an instructor in psychology in the Columbia Summer Session.

15. Verb-object (noun or pronoun response is *direct* object of stimulus-verb): *begin-work, deserve-praise, forget-me.*
16. Verb-adverb (adverb response modifies stimulus-verb): *accuse-falsely, come-away, use-now, bring-forth.*

Verb-stimuli may, of course, also give rise to Class 2 associations (in all three sub-heads) and to Class 4 associations (as described on page 548).

A sampling of 1000 cases of association with verb-stimuli showed that my own judgment was concurred in by the other judges in 949 cases, and agreement as to main types with disagreement as to sub-types was reached in an additional 15 cases. Of the 25 verb-stimuli used, 17 led to clear and unanimous classification of over 50 per cent of the responses received, and all of these stimuli were retained for use in the present study; the remaining verb-stimuli were excluded.

The above procedure cuts down the number of stimuli available for use by the classification method to the following:

Nouns.	Nouns (cont'd).	Adjectives.	Verbs.
man	bath	dark	believe
fruit	cottage	deep	excite
butterfly	priest	soft	enjoy
woman	ocean	short	give
river	head	smooth	appear
spider	stove	sweet	prefer
needle	child	slow	come
carpet	butter	white	admire
girl	thief	beautiful	receive
earth	lion	rough	bring
soldier	baby	high	insult
cabbage	scissors	sour	join
eagle	salt	hard	begin
stem	king	swift	injure
bread	cheese	long	use
boy	blossom	loud	perish
Bible	—	heavy	forget
	33	—	—
		17	17

Every association given by a manic-depressive or dementia præcox case can now be classified according to the tables prepared—or excluded in cases where no definite judgment was reached, or

where the word was given by no normal person. (A separate analysis of these "individual reactions," associations not given by any normal person, appears below.) We can now tabulate the total number of associations of each type given by each person, in order to ascertain whether certain types of association are more common in one pathological group or in the other. In this part of the work a comparison with the normal is also indispensable. For this purpose the associations of 250 normal persons from the original Kent-Rosanoff records were used, counting, of course, only the associations from the 50 stimulus-words which appear also in my own list. In the case of responses to verbs, my own 100 normal cases were used for the comparison.

TYPES OF ASSOCIATION.

The following figures indicate the number of associations falling within the various types, in so far as these associations had appeared and had been classified in the frequency tables of normals as described above.† (This first procedure includes therefore only the "common reactions," *i. e.*, cases which had already been reviewed by three judges and agreed upon as to classification.)

	48 dementia præcox cases.	51 manic- depressive cases.		48 dementia præcox cases.	51 manic- depressive cases.
1a*	89*	127*	8*	121*	171*
1b	14	18	9	3	3
1c	33	33	10	45	44
1d	15	16	11a*	65*	75*
2a*	161*	132*	11b	3	1
2b*	47*	86*	11c	0	6
2c	90	72	11d	1	3
3*	98*	122*	12*	21*	39*
4	271	279	13	20	18
5	83	98	14	6	6
6	46	46	15*	22*	57*
7	189	168	16	11	19

† The total number of responses equals theoretically 99 (number of cases) times 67 (number of words used in this method), or 6633. It will be seen that about 58 per cent of this number are actually included, the remainder being unclassified responses, faulty responses, failures to respond, and instances of misunderstanding the stimulus-word. The number of valid reactions is almost exactly the same in the two psychoses.

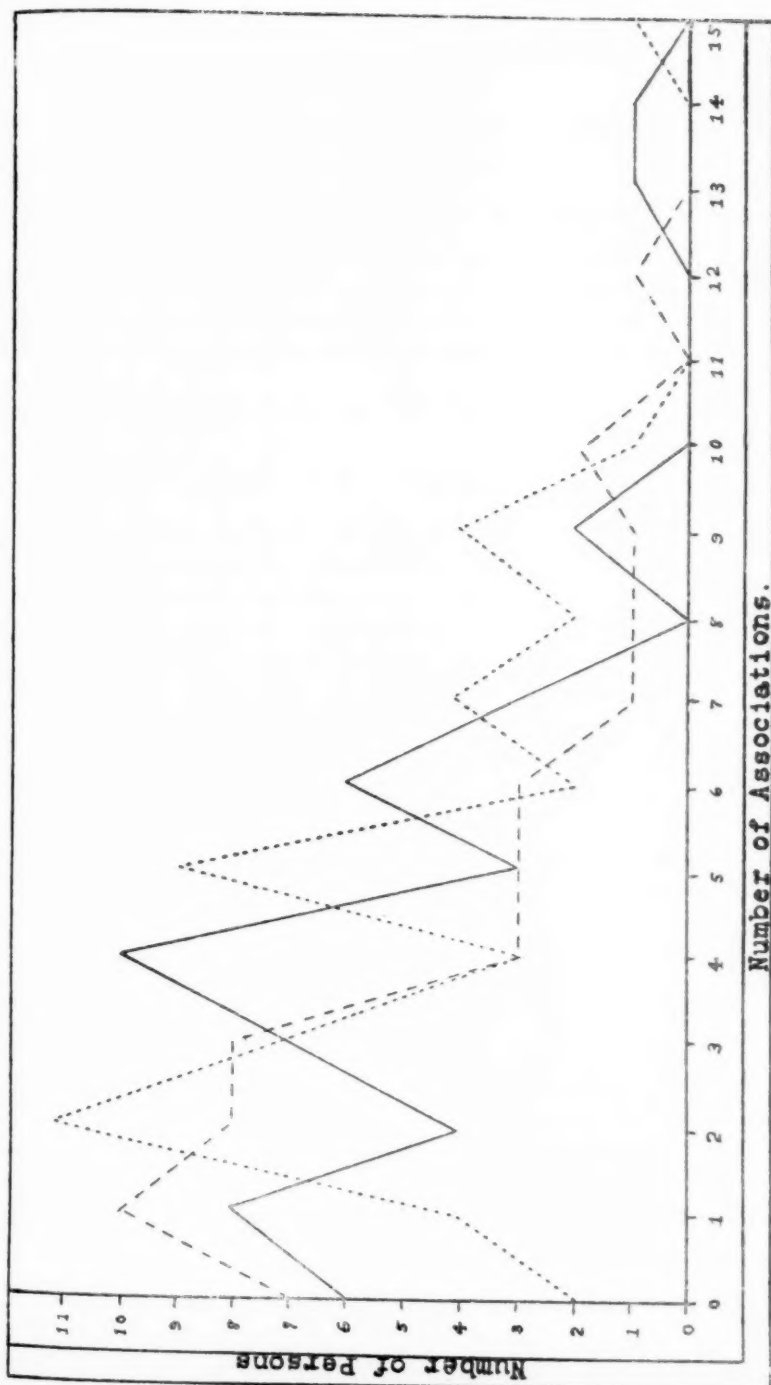
It will be observed that the differences between the groups are of little or no significance except, possibly, in types 1a, 2a, 2b, 3, 8, 11a, 12, and 15, against which I have asterisks (*). To ascertain whether these are of real significance, I added all the "individual reactions" (words which had been given by no normal persons, and in the classification of which I had to rely on my own judgment alone). I also studied these same types of association in the pathological material collected by Kent and Rosanoff (the records of 31 manic-depressive cases and 72 dementia præcox cases † being used). A comparison of the two psychotic groups on the basis of this larger material (82 manic-depressives and 120 dementia præcox cases) gave the following results: (præcox scores being reduced to make totals comparable.)

	Dementia præcox.	Manic- depressive.		Dementia præcox.	Manic- depressive.
1a	224	255	8	371	361
2a	242	100	11	195	236
2b	123	155	12	49	52
3	195	217			

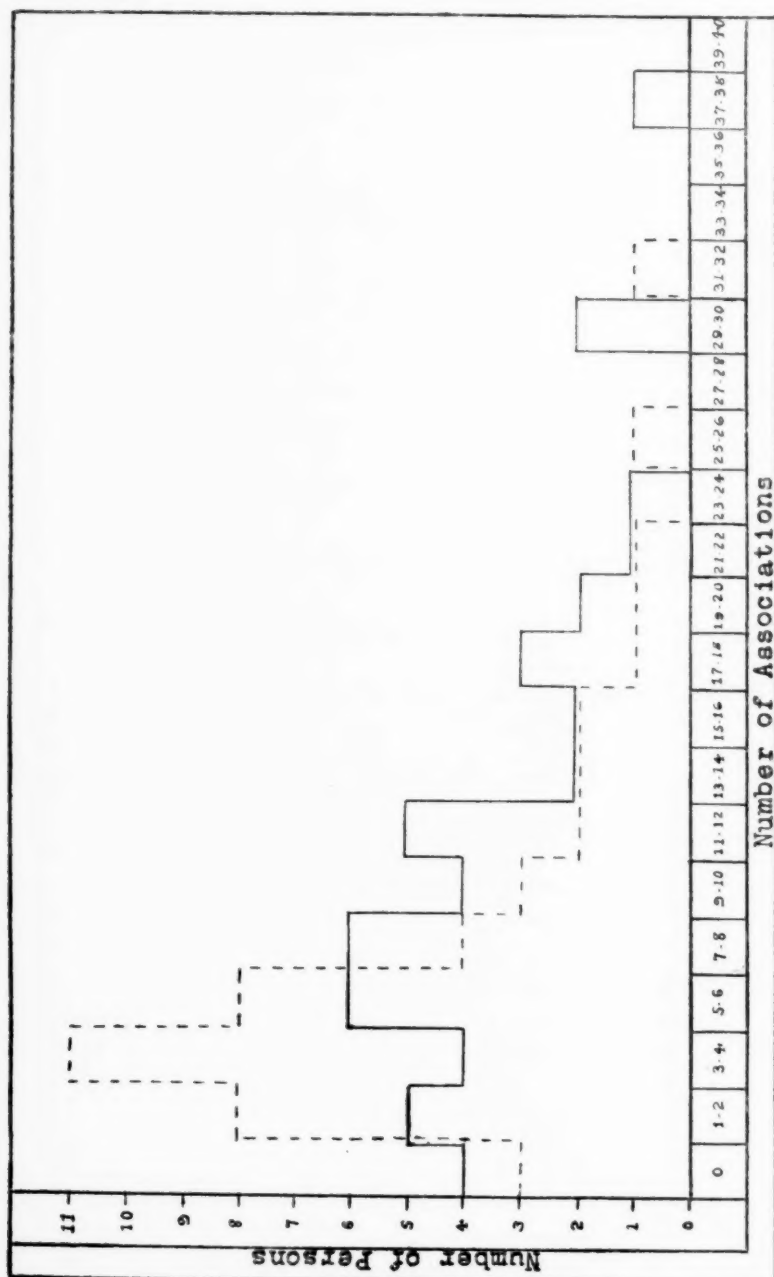
Class 15, a category in which verb-stimuli are followed by their direct objects, cannot be effectively used in the Kent-Rosanoff material because of a lack of unambiguous verb-stimuli, but a study of the individual reactions from my own cases shows approximately an equal number of Class 15 associations in the two groups: 52 in dementia præcox and 56 in manic-depressive psychosis. This comparison based on larger material tends to show that the differences indicated by the smaller material are really of little or no significance. It may be that we have in Class 15 a genuine difference, for we have in the manic-depressive group of 51 cases a total of 115 such associations against 72 for 48 cases of dementia præcox.‡ But in this case and in every other in the whole comparison, the individual variations within the groups are enormous—many cases of dementia præcox giving, for example, more Class 15 associations than certain cases of manic-depressive psychosis. The extent of

† The Kent-Rosanoff dementia præcox cases are arranged in ascending order of individual reactions. I had thus a total of 120 dementia præcox cases, omitting those with a very large number of individual reactions.

‡ The corresponding total for normals is 294 (147 for 50 cases).



GRAPH 1.—Number of "Contiguity" Associations Given by 50 Normal, 48 Dementia Praecox, and 51 Manic-Depressive Cases.



KEY.

Dementia Præcox

Manic-Depressive

GRAPH 2.—Total Number of Associations of Classes 8, 11, 12, and 15, Given by 48 Dementia Præcox and 48 Manic-Depressive Cases.

this overlapping of the groups in types of association can be roughly gauged from Graph 1, which shows the distribution for Class 1 associations (including all sub-classes—1-a, 1-b, etc.). The same kind of overlapping is a feature of all the distributions. Except for noting the general fact, a critical analysis of the nature of these curves seems of very doubtful value.

It is true that in several cases the data from pathological cases show marked deviations from the normal; for example, we may compare the figures just given with the following totals for Classes 3, 8, and 11-a in normal persons (the scores for 250 normals being reduced to make them comparable with the smaller groups):

		(Dp.)	(Md.)
Class 3	113	(195)	(217)
Class 8	616	(371)	(361)
Class 11-a	444	(195)	(236)

We have not, however, anything which tends to make clear a difference between the two pathological groups.

It will be noted, however, that Classes 8, 11-a, 12, and 15, constituting a mass of associations more or less similar to the "predicate" type described by Jung, all show higher scores in the manic-depressive group than in dementia præcox, and a computation of the total score for these four types shows a rather suggestive difference. Graph 2 shows the distribution of the individual cases. It is possible that these four types of association, all of which involve, so to speak, "carrying out an idea" rather than "addition of a new idea," really belong psychologically together. The Pearson correlation, in 250 normal persons, between Classes 8 and 11-a is $+.33$ (the scores in Classes 12 and 15 are too small to give reliable correlation figures). But no very great significance can be attached to these findings in view of the fact that in the Kent-Rosanoff material the total scores for Classes 8, 11-a, and 12 (Class 15 lacking, as explained) are, for dementia præcox, 342, and for manic-depressive psychosis, 255—a result negating my own results, and suggesting, as much of the material does, that the variations of cases within groups and various samplings of material swamp the apparent differences observed in small groups.

I believe it may fairly be concluded that within the classes used thus far there is, with a possible exception in Class 15, none which

is in any sense definitely associated with one psychosis rather than with the other.

Within the general field of "predicates," however, several investigators speak of "worth-predicates,"¹⁷ or "predicates of value," in which the subject assigns a personal value to, or offers an emotional interpretation of, the stimulus. A simple predicate would be such as *sky-blue*; a worth-predicate would be such as *sky-beautiful*. We have, unfortunately, no criterion to decide which predicates are worth-predicates except the judgment of the classifier, which is peculiarly unreliable in such a matter. If we restrict the term "worth-predicate" to noun-adjective associations, in which the adjective involves a value judgment of the stimulus-noun, we find very few cases in either group; study of 25 typical dementia præcox cases and 25 manic-depressives from my own material discovered a total of only 10 in the dementia præcox group, and nine of these were given by a single individual, while in the manic-depressive group 12 were found scattered among eight individuals. It is obvious that responses of this particular type are too rare to make a reliable comparison possible. The term "predicate" can probably be used more profitably by including all responses of the value-judgment form, whether noun-adjective associations or not; and the Kent-Rosanoff material is more useful for such a purpose because the list used included a number of words of emotional significance, such as *sickness*, *trouble*, etc., which were not used in my list. A study of value-judgments in 25 dementia præcox cases and 25 manic-depressives, taken from the Kent-Rosanoff data,* gave a total of 171 in the former, and 175 in the latter, with the distributions ranging all the way from 0 to 35 in dementia præcox, and from 0 to 24 in manic-depressives. It is very unlikely that the presence of worth-predicates is pathognomonic of either group.

In the material so far presented, no responses of more than one word have been studied, except that on account of its great fre-

¹⁷ E. g., Jung and Riklin, *Diagnostische Assoziationsstudien*.

* Cases taken from the central part of the dementia præcox group in order of individual reactions, i. e., no cases with very small or very large number of individual reactions.

quency the response *part of the body* to the stimuli *hand, foot, stomach, and head* was admitted (as a supraordinate), and the response *human being* to the stimuli *man, woman, girl, boy, child, and baby* was admitted (as a supraordinate). Moreover, cases where the response constituted a repetition of the stimulus together with a new word, such as *man-good man*, or *swift-swift river*, were scored as if the new word alone had been given. Such cases as these, however, are relatively insignificant in the total mass of material; and we must take account of the great mass of responses with more than one word which appear so frequently in pathological cases. Some of these are hard to classify on any basis, but an attempt was made to put these, in so far as possible, into the classes named already. For example, if to the stimulus *man*, the patient responds *member of the human race*, we might plausibly consider this a supraordinate; or if he responds *awful funny*, we may call this a Class II-a (noun-adjective) association. The result was to show that about 25 per cent of these responses with more than one word were classified as synonyms or definitions (Class 2-a); another 25 per cent were classed as supraordinates; the responses in all other classes were few and scattering, nearly half of the total being unclassifiable. No difference between the two psychotic groups appeared. This is, of course, one of many cases where mass methods are of much less value than analysis of each reaction.

Another defect in my system of classification is that, in its attention to logical relations between stimulus and response, it neglects the problem of responses in the form of proper names and personal pronouns. *Man-Charles* counts simply as a subordinate, and *baby-my* counts simply as a noun-adjective association. A separate computation was now made of the proper names which appear in the records of 31 manic-depressives and 102 dementia præcox cases from the Kent-Rosanoff material (the entire available material from this earlier work). The number of proper names ranges in dementia præcox from 0 to 37 and in manic-depressive psychosis from 0 to 23, the average number for dementia præcox being 2.25 and for manic-depressive psychosis being 3.7. In view of the fact, however, that 40 per cent of these proper names in the manic-depressive group come from three individuals, the tendency to give

proper names, if significant at all, is a trait of *certain* manic-depressives rather than a constant sign associated with the psychosis.

The problem of the use of personal pronouns seemed to me to reach its greatest interest in the patient's reference to himself, and for this reason 25 cases in each group* were compared as regards the number of responses consisting of or including the words, *I, me, my, myself* (consisting, of course, largely of *I* and *me* to verb-stimuli, but including every case where the pronouns named were used, even a few such as "*I can't say that, doctor,*" or "*That's too much for me*"). The totals were 58 for manic-depressives and 48 for dementia præcox, but with the extraordinary fact that 38 of these from dementia præcox cases were given by two individuals. The same method was therefore applied, in search for interesting variations, to my remaining 23 dementia præcox and 26 remaining manic-depressive cases, with the result of adding only a total of 10 from the former group and 14 from the latter, scattered widely. Measurement of an "egocentric" tendency by such a crude method is apparently impossible.

Again, departing from the original purely logical classification, a count was made of the total number of rhymes and sound-associations in my two groups. The results are:

	Rhymes.	Sound-associations.
Dementia præcox (48 cases).....	20	20
Manic-depressives (51 cases).....	19	32

These totals would suggest the absence of a criterion; but 16 of the above rhymes in dementia præcox were given by a single individual, while the rhymes from manic-depressives were contributed by 13 individuals. Similarly, 12 of the 20 sound-associations in dementia præcox were given by a single individual (not the one just mentioned), while the sound-associations given by manic-depressives were contributed by 17 individuals. It would probably be fair to interpret this situation as due to a general tendency in manic-depressives to give rhymes or sound-associations, two of the dementia præcox cases being considered anomalous. This is the more likely in view of the conclusions of several earlier investigators

* From my own material.

(see pages 541 and 542) as to the presence of these forms of response in *manic* patients. These results are not, however, in harmony with the findings of Kent and Rosanoff, whose data indicate slightly more sound-associations (the term in this case including rhymes) in dementia præcox than in manic-depressive psychosis. If there is a difference here between the psychoses, it is small and of little significance.

A defect in all the comparisons of the two large groups thus far lies in the fact that the *manic* and the *depressed* patients are not studied separately. The manic-depressive group was therefore subdivided into its three main types—manic, depressed, and mixed; and in every case wide variations within the sub-groups appeared, exactly like the wide variations within the manic-depressive group taken as a whole. In the case of classes of association, for example, the number of *contiguity* associations in 25 *manics* ranges from 0 to 18; in 12 *depressed* cases,* from 0 to 14; in 14 *mixed* † cases, from 2 to 15. In the case of rhymes, 2 of my own group of 8 *depressions* offer 4 and 2, respectively—7 of the 25 *manics* giving a total of only 9, and *mixed* cases giving a similar small and scattering number. Every method of comparison which has here failed to find a difference between dementia præcox and manic-depressive psychosis, has failed also to find a difference between *manic*, *depressed*, and *mixed* types within the latter psychosis.

In these comparisons, however, no attempt has been made thus far to distinguish between the manifestations of acute psychotic episodes and the fundamental psychotic dispositions or personality-traits. In only one instance did this appear practicable—and this was badly needed—a comparison of the *severely excited manic* patients with the remaining (less excited, and in many cases, convalescent) manics. Six of my cases (1 man and 5 women) were selected as exhibiting marked excitement and extreme manic symptoms (two were in restraint at the time of the experiment, a third was in continuous bath, and a fourth was confined to his bed). Three of these patients gave responses which seemed to me indis-

* Adding, to my group of 8, 4 depressions from Kent-Rosanoff.

† Including 1 of perplexity type and 2 of circular type.

tinguishable from the normal, and deviating in no clear-cut way from the remainder of the manic-depressive group. Two gave responses in the form of phrases and sentences, showing "flight of ideas" in extreme form. The sixth gave responses consisting almost entirely of changes in word-form, such as *deep-depth*, *woman-women*. This situation throws no great light on our problem; surely the "flight of ideas" is easily enough observed in manics without use of the association-test. The peculiarity of the sixth case, however, suggested a search throughout these 6 cases for changes in word-form. It was found that the remaining 5 cases gave a total of 30 such responses, a figure much higher than that found so far, and due not so much to one case as to a cumulative tendency. These 5 cases gave, respectively, 10, 9, 5, 3, and 1 responses of the word-changing form. Twenty-five cases of dementia præcox and 19 additional manic-depressives from my own material were therefore studied in this respect. Thirty-three such responses were found in the dementia præcox group, and 32 in the group of 19 manic-depressives—results indicating a slightly higher frequency of such responses in manic-depressives, but with the usual marked overlapping and no very definite difference between the groups. In this comparison manic, depressed, and mixed types are indistinguishable, 3 of my depressions giving 9 of the 32 responses of this type. This appears to justify the conclusion that the tendency to this type of response is associated with extreme excitement—a result in line with Aschaffenburg's early conclusions—but not clearly associated with manic-depressive psychosis as a whole, or even with the manic condition, except in its extreme form.

Tendencies to stereotypy and neologisms are traditionally associated with dementia præcox.¹⁸ A study of 25 cases from each of my two groups revealed only one individual—a manic-depressive manic—who gave any neologisms at all—9 of his responses being of the word-coining type with meanings which he explained after the experiment. Five dementia præcox cases and 6 manic-depressives showed stereotypy (in the Kent-Rosanoff sense of repeating a reaction 5 times during the experiment). Neither of the traits

¹⁸ See for example the studies of Sommer, and Kent and Rosanoff.

mentioned seems likely enough, from these findings, to be sufficiently pathognomonic of either condition to justify further study. My own dementia præcox group is too small to justify me in denying that both traits may really be typical of this disorder. I wish only to suggest that unless these traits appear fairly regularly, or much more frequently in dementia præcox than in manic-depressive conditions, their diagnostic usefulness is not likely to be very great.

COMPARISON WITH CHILDREN'S ASSOCIATIONS.

From time to time, a good deal of work has been reported on the associations of children.¹⁹ Certain characteristic differences between normal adults and normal children have been pointed out by Woodrow and Lowell²⁰—differences both in types of association and in the frequency of responses. They find, for example, that 10.6 per cent of the associations of normal adults (the 1000 normal cases of Kent and Rosanoff) were *contrasts*, while only 1.3 per cent of the associations of 1000 children were of this type. As regards *frequency*, we find, for example, that the stimulus *needle* evoked the response *set* from 449 children, but from only 134 adults.

So much attention has been given to the phenomena of "regression" and to the presence of certain childish tendencies in mental disorders, especially dementia præcox, that it seemed desirable to make a comparison of the associations of my two psychotic groups with those of children. This suggestion was given me by Dr. N. Kopeloff of the Psychiatric Institute, New York; and its execution was made possible by use of the extensive data of Kent and Rosanoff, and of Woodrow and Lowell.

First, as regards frequency. The method used was to take each response to a given stimulus, find how common that response is among adults (by use of Kent-Rosanoff frequency tables), and how common it is among children (by use of the Woodrow-Lowell frequency tables). This method was applied to all the "common

¹⁹ E. g., see the references given by Woodrow and Lowell in article named in footnote 20.

²⁰ Children's Association Frequency Tables, Psych. Rev. Monogr. Sup. No. 97, 1916.

reactions" of 25 dementia præcox cases and 25 manic-depressives from the Kent-Rosanoff material, and checked by comparison with the records of 25 normals from the same material. We should expect, of course, that in the long run the common reactions of normal adults will have a higher frequency on the adult frequency tables than on the children's tables. We find, in fact, that the average frequency of common reactions in the normals studied is 102 in the adult tables, and 73 in the children's tables. This is almost exactly paralleled by the figures 100 and 67, respectively, given by manic-depressives. When, now, we turn to the dementia præcox associations we find a decrease in frequency, as is stated by Kent and Rosanoff to be characteristic; but the higher frequency on the adult tables than on children's tables remains quite clear—78 on the former, 57 on the latter. This means simply that by the frequency method, the associations of dementia præcox are decidedly more like the associations of the normal adults than like the associations of children, despite the fact that the tendency to low-frequency responses is clearly marked. This method necessarily is limited to the study of common reactions. As regards individual reactions, we might in theory find how large a proportion of these appear in the children's frequency tables. But an individual reaction is, by very definition, one which was not given by the normal adult 1000—a number far too small to limit the range of normal adult association. The chance factors involved in such a comparison are probably too enormous to give reliable results. The question of individual reactions will shortly be discussed in connection with the question of types of association.

An attempt was next made to compare the *types* of association in dementia præcox and manic-depressive psychosis with those found in normal adults and children, respectively, using the data of Woodrow and Lowell.* Including only those types of association which appear, in comparable form, both in the scheme of Woodrow and Lowell and in my own, and making correction, in my

* Difficulties in comparison arise because of differences in procedure; the only one which can be adequately corrected is the occurrence of relatively fewer adjectives in their list than in the 50 words used by me in the comparison. Correction for this is made in the column headed "Adjective-noun."

own material, for the fact that my own list contains a larger proportion of adjectives than Woodrow and Lowell's, the following results are obtained:

	Contiguity, 1 + 1d	Whole-part, 1b	Part-whole, 1c	Contrast, 4
Normal (Kent-Rosanoff)	6.0	2.1	1.1	10.6
Normal (250, K.-R.)*	8.1	1.6	2.4	8.9
Children	15.3	3.6	.4	1.3
D. P.†	7.0	1.1	1.8	8.9
M.-D.‡	7.5	1.0	1.8	11.6

	Subor- dination, 6	Supra- ordination, 7	Adjective noun, 8	Noun adjective, 11a	Sound similarity, 11b
Normal (Kent-Rosanoff)	1.6	7.6	6.9	4.3	.07
Normal (250, K.-R.)*	3.3	8.1	9.9	9.3	...
Children	2.1	3.7	11.2	7.8	.43
D. P.†	2.6	9.0	7.2	4.3	1.4
M.-D.‡	2.6	7.3	5.9	5.8	1.3

The results show that the associations of dementia præcox and manic-depressive patients, studied by the classification method, are decidedly more like the associations of normal adults than like those of children. The percentages, in fact, for the two pathological groups are in most cases very close to the normal; and where they deviate, they show no consistent tendency to deviate in the direction of children's associations.

Individual reactions may perhaps be a better key to the peculiarities of dementia præcox, manic-depressive conditions, and children, in so far as these express themselves through the association tests. A study was therefore made of all the individual reactions from my two pathological groups (the determination of individual reactions in the case of verb-stimuli being obtained by means of the frequency-tables for my own 100 normals). For comparison, I took at random ‡ 500 individual reactions from the Woodrow-Lowell tables, and 500 from the Kent-Rosanoff tables (associations given by one normal person in each case). The fol-

* Classified by my group of three judges.

† Adding Kent-Rosanoff data to my own.

‡ I. e., by an arbitrary chance sampling method.

following table shows the percentage of all individual reactions * falling within the various classes of association:

	Normal adults.	Normal children.	Dementia præcox.	Manic depressive.
1a	6.6	6.4	(2.2) 3.3	(3.0) 4.0
1b	2.2	2.8	(.4) .5	(.6) .8
1c	1.2	1.0	(.3) .4	(.5) .7
1d	1.8	2.0	(1.1) 1.5	(1.4) 1.9
2a .....	.4	.4	(.9) 1.2	(.5) .7
2b .....	.6	.6	(6.8) 9.0	(7.4) 9.9
2c	3.6	2.4	(5.1) 6.1	(6.6) 8.8
3	3.0	1.6	(1.4) 1.9	(.9) 1.2
4 .....	.8	.6	(4.0) 5.3	(3.8) 5.0
5	0	0	(0) 0	(0) 0
6	3.2	1.2	(1.2) 1.6	(.9) 1.2
7	1.8	.8	(2.3) 3.1	(1.8) 2.4
8	12.4	15.2	(6.1) 8.1	(8.2) 10.9
9 .....	.6	.4	(.3) .4	(.3) .4
10 .....	.2	.2	(0) 0	(0) 0
11a	12.0	14.6	(2.3) 3.1	(5.2) 6.9
11b	1.8	0	(0) 0	(0) 0
11c .....	.8	1.0	(.2) .2	(.1) .1
11d .....	.8	1.2	(.7) .9	(.9) 1.2
12	1.0	5.0	(.2) .3	(.5) .7
13	1.0	2.6	(0) 0	(0) 0
14 .....	...	...	(1.8) 2.4	(2.3) 3.1
15 .....	...	...	(7.3) 9.8	(7.3) 9.8
16 .....	...	...	(3.5) 4.7	(1.1) 1.4
Unclassified	44.4	40.4	(49.4) 49.4	(48.2) 48.2

In the columns headed Dementia Præcox and Manic-Depressive I have given in parentheses the actual percentages. In view of the fact, however, that my own word list contains 17 verbs out of the total of 67 words, while no verb-stimuli are to be considered in the data on normal adults and children, I add a corrected figure outside the parentheses, which is more directly comparable to the first two columns. It will be noted that in the percentages given above, normal adults and children are close together, deviating in some cases from psychotics by considerable margins. The psychotic groups, in turn, are in most cases close together. The only figures

* Including what Kent and Rosanoff call "doubtful reactions"—in which a variant of the word appears in the tables, but not the word itself.

deserving a special note appear to be those under Class 2-b, in which the tendency of psychotics to give changes in word-form are mainly responsible for the result—manic-depressives taking the lead by a slight margin. . . . In passing, it may be noted that the total number of individual reactions from 51 manic-depressives is 789, against 684 for 48 cases of dementia præcox. This greater frequency of individual reactions in manic-depressive psychosis, so contrary to our expectations from the work of Kent and Rosanoff, is almost certainly due to the fact that my cases of dementia præcox presented in general only slight deterioration, while the larger material under this diagnosis in the earlier work comprised a large number of very deteriorated cases. I hazard the suggestion that individual reactions are characteristic not of the disorder itself but of the deterioration appearing in many cases. The question cannot be settled until data are at hand for a direct comparison of early and late præcox cases, showing various definitely ascertained shades of deterioration. It must, of course, be conceded that the lack of catatonic patients in my own material may be responsible for the findings; I think that it may justly be replied that individual reactions are not to be accepted as really characteristic of dementia præcox, unless they are proved to be characteristic of paranoid and hebephrenic forms—characteristic, in fact, of all common forms.

CORRELATION METHODS.

In the earlier study above referred to,²¹ I offered the suggestion that although no one type of association is clearly associated with either psychosis, nevertheless, *high correlations* existed between certain types of association in one psychosis, which did not exist in the other. The correlation, for example, between Classes 8 and 11 in manic-depressive excitements was stated to be $+ .72$ —meaning that the manic patient who gives many adjective-noun associations is very likely to give many noun-adjective associations, while the manic who gives few of one class will, in general, give few of the other; the correlation of these in dementia præcox was found to be only $+ .28$. The correlations offered were based on only 13 dementia præcox cases, 12 manic-depressive excitements, and 21

²¹ AMER. JOUR. OF INSANITY, Vol. 77.

manic-depressive depressions, and are therefore all very unreliable. I give below the original findings, together with similar correlations obtained for 250 normal, 120 dementia præcox,* and 82 manic-depressive cases;† and also correlations for a group of 25 manic-depressive manics, a group of 12 manic-depressive depressions,‡ and a group of 14 manic-depressives of mixed type.

CORRELATIONS OF CLASSES.

EARLIER FINDINGS.			PRESENT FINDINGS.		
	1 with 8.	8 with 11.		1 with 8.	8 with 11
20 Normals .....	.24	.25	250 Normals .....	.23	.33
13 D. P. ....	.68	.28	120 D. P. ....	.34	.19
12 M.-D. manic ....	.22	.72	25 M.-D. manic ....	.52	.46
21 M.-D. depr. ....	.20	.66	12 M.-D. depr. ....	.54	.53
			14 M.-D. mixed ....	.73	.55
			82 M.-D. ....	.44	.27

The above citation of earlier findings is roughly, but only roughly, comparable with present findings because rank-difference correlations were used in the former, and Pearson correlations in the latter. In all cases but that of the manic-depressive depressions, the present findings are much more reliable; at this point, however, my present group is even smaller than the earlier group. My two main conclusions from the earlier data were, first, that the correlation of Class 1 with Class 8 is higher in dementia præcox than in manic-depressive excitements, manic-depressive depressions, or normals; and second, that the correlation between 8 and 11 is higher in manic-depressive excitements and depressions than in dementia præcox or normal. The present data seem definitely to negative the first conclusion, and rather clearly to confirm the second conclusion. It is true that the peculiar distribution of manic-depressive cases causes the disappearance in the whole group (82 cases) of the high correlation found when each of the three types of manic-depressives is studied. This does not, of course, invalidate the characteristic relation of Classes 8 and 11 within the sub-types.‡ A

* Includes much Kent-Rosanoff material.

† Includes 4 Kent-Rosanoff cases.

‡ It would be highly desirable to make a similar study of sub-types in dementia præcox. My small number of hebephrenics has prevented this.

much more serious defect in such data, from the standpoint, at least, of application, is that they do not present conclusions making for clear prediction in individual cases. A high correlation means in the long run a small difference between two variables; and in the long run a smaller difference between the total of Class 8 and the total of Class 11 is to be expected in manic-depressives than in dementia præcox cases. An attempt, however, to devise a "trick method" by which a certain difference between these totals is to be considered a sign of dementia præcox or manic-depressive psychosis is of very little value; the correlations and differences, to be useful in this way, would have to be much larger. The attempt to devise such a method, offered in my previous study, seems to me to have been very shortsighted. The factors underlying these curious differences in correlation are so exceedingly intricate and elusive, that vastly more work would have to be done to enable us to see why a certain type of association goes with another, or why these relations vary from one psychosis to another. The psychotic groups would also have to be larger (in the case of the manic-depressive sub-types) to make us absolutely sure that chance factors are not responsible for the figures.

In addition to this very risky application of findings in the field of correlation, my earlier tentative report made use of a criterion to the effect that "four or more individual reactions which are contiguities" are on the whole a sign of dementia præcox, and a criterion to the effect that "to give eight or more noun-adjective associations seems atypical of dementia præcox." It is true that the present study finds more noun-adjective associations in manic-depressives than in dementia præcox, but the margin is not large enough to justify any such criterion as the one just mentioned; and the number of "individual reactions which are contiguities" is actually higher in the present data from manic-depressives than in those from dementia præcox—the criterion based on "individual contiguities" perhaps being derived from the fact that the earlier præcox group contained several very deteriorated cases. The premature attempts at "criteria" for aid in differential diagnosis are therefore withdrawn. The earlier study, in offering the criteria, used the phrase "if the methods hit upon do not owe their success

to the accidental distribution of this small dementia præcox group." The "if" appears to have been of special significance.

CONCLUSIONS.

(1) The study of 250 normal, 120 dementia præcox, and 82 manic-depressive cases, by the method of classifying associations according to logical relationship between stimulus and response, shows in every case overlapping of the groups, and in most cases no significant differences in central tendencies. The normal group gives far fewer "co-ordinates" and far more adjective-noun associations and noun-adjective associations than either of the pathological groups, but the latter groups do not differ significantly from each other.

(2) Rhymes and sound associations appear to be slightly more characteristic of the manic-depressive group than of dementia præcox.

(3) Responses in the form of proper names and responses using the first personal pronoun do not appear to be particularly characteristic of either disorder.

(4) Responses of the "value-judgment" type appear with equal frequency in samplings taken from the two main groups.

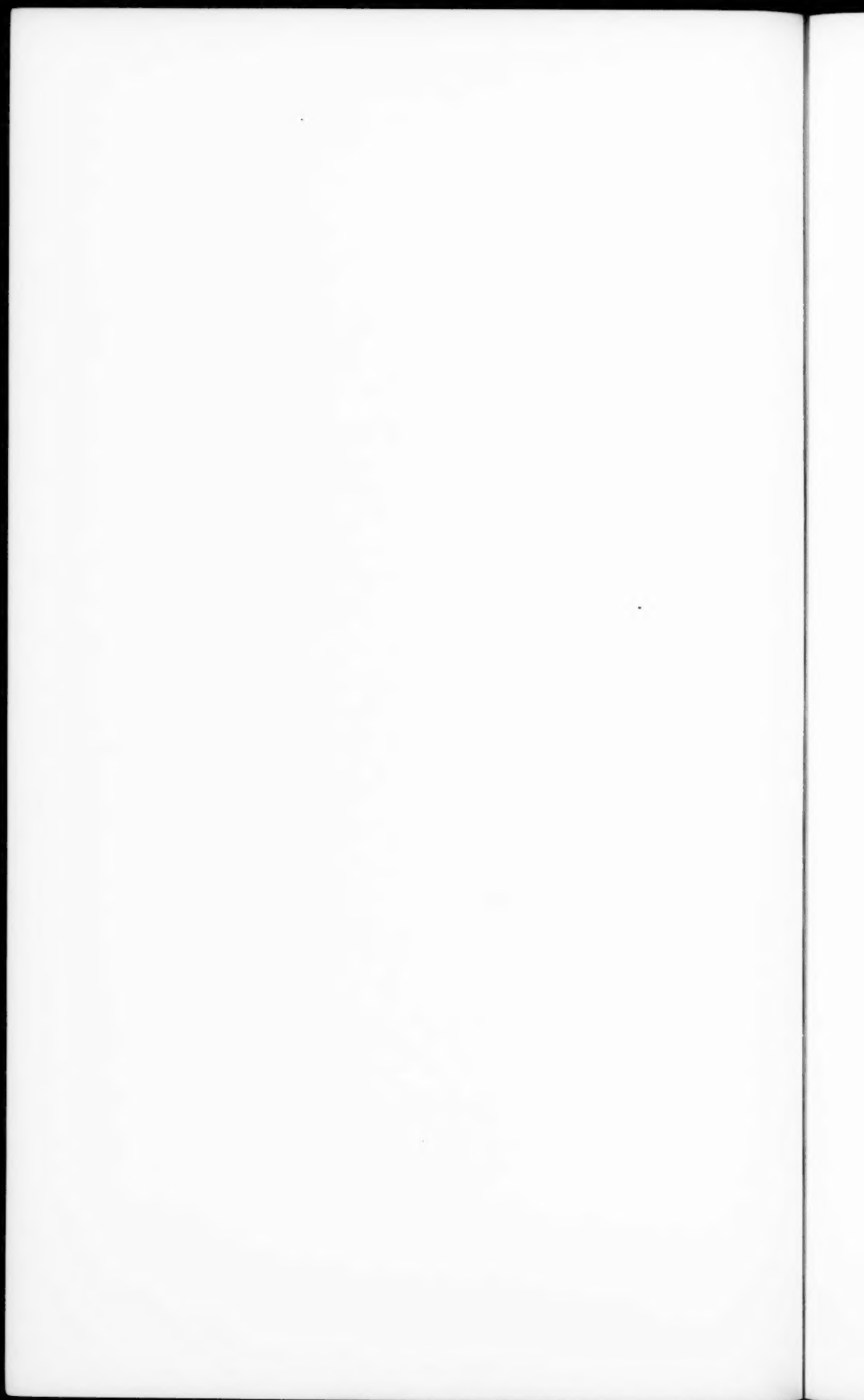
(5) Responses which consist in merely changing the word-form of the stimulus, as from a singular to a plural, an adjective to an adverb, etc.—including the addition or dropping of suffixes—appear to be definitely characteristic of very excited manics, but not so definitely characteristic of all manics or of the manic-depressive group.

(6) The associations of both pathological groups resemble the associations of normal adults very much more than they resemble the associations of children, whether measured by the Kent-Rosanoff "frequency" method, or by computing the number of associations falling within various types. A special study of "individual" reactions shows no striking difference between their logical classification in children and in adults, and no striking difference in their classification in the two pathological groups; in a few cases, the two normal groups vary in the same direction from the pathological groups.

(7) In all three of the common sub-types of the manic-depressive psychosis, a Pearson correlation of approximately .50 appears

between the adjective-noun and the noun-adjective types of association, while the dementia præcox group presents a correlation (for 120 cases) of only .19.

(8) The above conclusions, and constant comparison of individual records with others, seem decidedly to confirm the conclusion of Kent and Rosanoff that "a large collection of material shows a gradual and not an abrupt transition from the normal state to pathological states"; and, further, the conclusion of Kraepelin that "the associations of our patients . . . deviate in general remarkably little from those of the healthy." So far as the present data go, they confirm the Kraepelinian view that the experiment strikes chiefly at "the crystallization of the habits of speech, which are little influenced for the most part by disease, comparatively speaking." This very disappointing result attaches, however, to relatively simple and direct methods of comparison; the present data justify no conclusion as to the possibilities of the association experiment in the field of detailed analysis of particular associations, the psycho-galvanic method, or the statistical analysis of association-times. The suggestion is offered that types of word-association, *as such*, are but little related to the fundamental attitudes and adaptations to life underlying the mental disorders which are here compared.



A STATISTICAL ANALYSIS OF CERTAIN PHASES OF EPILEPSY.¹

By OLIVE CUSHING SMITH.

The following study has been made of 609 case histories of epilepsy from the consultant practice of Dr. Henry M. Thomas. Including, as it does, people of education and some even from professional life, it was thought that the group might offer points of interest differing from those presented by studies of institutional cases. The analysis is made purely from the statistical point of view which means an attempt to determine characteristics of the group rather than peculiarities of the individual in the manifestation of the disease.

In order to treat the material in this way, it was decided to use the punch card system. The detailed information contained in the histories was classified under more or less broad headings and condensed by means of codes into a form that might be recorded on cards made for this purpose. It was then possible to sort and tabulate the cards by sorting and tabulating machines. Fig. 1, showing the card form used, will indicate the data thus obtained.

By means of the codes this is interpreted as follows:

Family history: Mother's sib, epileptic. Father of patient, organic nervous disease. Other than this, negative.

Sex: male. Social status: single.

Type of birth: not noted.

Infantile convulsions: positive.

Birth order: second child.

Illnesses: infectious disease and trauma.

Onset of petit mal: age 6.

Onset of grand mal: age 25.

Aura: epigastric.

¹ Papers from the Department of Biometry and Vital Statistics, School of Hygiene and Public Health, Johns Hopkins University, No. 65.

The author wishes to express her indebtedness to Dr. Henry M. Thomas for his guidance in interpreting and classifying the neurological conditions of the histories; and to Dr. Lowell J. Reed for suggestions and instruction in the statistical work.

Case No.		Age Seen		Date Seen		F. History						Sex		Birth Order		Illness		Age P. M.		Age G. M.		Aura		Char. P. M.		Conv. G. M.		Tong.		Time G. P.		Post Epl.		Dura P.		Dura G.		Freq. G.		Incr. Decr.		Ment.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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FIG. 1.—Facsimile of a Card Form (Tabulating Machine Co.) Used in This Work.

Character of petit mal: vertigo and automatic actions.
 Convulsions in grand mal: general.
 Loss of consciousness: complete.
 Tongue bitten: no. Loss of sphincter control: no.
 Post epileptic phenomena: automatic actions and sleep.
 Frequency of petit mal: "frequent"² single attacks.
 Frequency of grand mal: "moderately frequent"³ single attacks.
 Frequency of petit mal: increasing. Grand mal: no change.
 Mentality: "normal."

Since the present discussion is limited to age and manner of onset and their relation to family history, only those tables concerned with these aspects are given here. Table I presents the number of patients having unknown, negative, and neuropathic family histories.

TABLE I.
FAMILY HISTORY.

Type.	Males.	Females.
Family history unknown	9	9
Family history negative (including organic nervous) ..	159	96
Family history neuropathic: 1 relative	98	67
Family history neuropathic: 2 relatives	47	35
Family history neuropathic: 3 relatives	21	31
Family history neuropathic: More than 3 relatives ..	19	18
Totals	353	256

Table II gives the distribution of neuropathic conditions under the relatives so affected. Any three of the individuals included in the heading of this table may be recorded on the card. If there were more than three, only two were specifically designated and the third place was then marked "several undesignated." In the event of one relative having more than one neuropathic condition only the one most marked was listed, but there were very few of these cases. It should be noted that the totals at the foot of this table give the number of relatives in question, but not the number of patients, except in the columns for father or mother, for in any other column several relatives may belong to one patient.

² "Frequent" attacks may be from one a month to one a week.

³ "Moderately frequent" may be from six to twelve a year.

TABLE II.
FAMILY HISTORY.

	Males											
	Father	Mother	Brother	Sister	Father's parent	Mother's parent	Father's sib	Mother's sib	Father's other	Mother's other	Several undesig- nated	One undesig- nated
Epilepsy	7	4	5	5	2	1	4	5	2	10	1	1
Fainting, etc.	4	6	-	3	1	1	-	2	-	1	1	-
Infantile Convulsions	-	-	7	3	-	1	1	-	-	-	3	-
Alcoholism	21	-	-	-	-	-	-	-	-	-	-	-
Migraine	13	18	5	1	2	4	-	1	-	1	7	-
Neuropathic	27	38	10	12	4	3	4	5	2	3	10	2
Mental	1	5	1	2	1	1	4	4	2	4	1	2
Total	73	71	28	26	10	11	13	17	6	19	23	5
Organic nervous	15	5	6	2	--	2	--	3	2	--	1	2
	Females											
	Father	Mother	Brother	Sister	Father's parent	Mother's parent	Father's sib	Mother's sib	Father's other	Mother's other	Several undesig- nated	One undesig- nated
Epilepsy	4	1	10	5	-	3	9	10	5	8	1	4
Fainting, etc.	1	3	1	3	2	-	1	-	2	1	1	-
Infantile Convulsions	-	2	4	3	-	-	1	-	-	1	3	-
Alcoholism	15	-	-	-	-	-	-	-	-	-	-	-
Migraine	11	12	1	4	1	1	2	-	-	-	7	-
Neuropathic	17	48	10	12	2	7	3	5	3	-	9	-
Mental	1	-	3	3	-	1	-	3	-	1	3	1
Total	49	66	29	30	5	12	16	18	10	11	24	8
Organic nervous	5	4	5	2	2	4	--	--	--	--	--	--

Epilepsy includes conditions described as fits, spells, attacks, etc. Mental includes insane, idiot, feeble-minded, retarded.

Migraine includes all types of headaches. Fainting, etc., includes undesignated nervous attacks.

Neuropathic includes chorea, hysteria, ties and other manifestations of nervousness. Organic nervous conditions were recorded but not included as hereditary factors.

The table for onset of epilepsy gives the ages of onset in groupings of five-year periods for cases of separate types—grand mal only, petit mal only, and cases of both grand mal and petit mal. The total number of patients in whom the onset occurred in any age period may be seen in the total columns at the sides of the groups for male and female, respectively, while the row of totals at the foot of the table gives the number of patients having any given manifestation of the disease.

ANALYSIS.

The first analysis was made for age of onset from Table III, and the statistical constants used were the mean, the standard deviation, and the probable error of the mean. The mean is

TABLE IV.
STATISTICAL CONSTANTS DERIVED FROM AGE OF ONSET.

Class.	Males.			Females.		
	Mean age of onset.	Stand-ard devi-ation.	Probable error of mean.	Mean age of onset.	Stand-ard devi-ation.	Probable error of mean.
From "total" column..	20.90	14.73	.53	18.44	14.42	.61
Cases of petit mal only.	24.17	18.78	2.11	23.53	18.59	2.33
Cases of grand mal only.	22.29	14.78	.92	17.42	14.59	1.23
Cases of both petit mal and grand mal.	19.48	13.64	.66	17.93	13.27	.70

much discussed in the literature on epilepsy as the measure of a group, but it is an incomplete measure by itself, since two means might be identical and yet the distributions, widely different. There should be some indication of the variation on either side of the mean and this is given by the standard deviation. The probable error of the mean is a function of the standard deviation and is used as a method of applying the theory of probability.

These constants were derived from Table III for males and females, first from the total columns and then separately from the three groups, petit mal only, grand mal only and both. They are shown in Table IV above.

To compare males and females in this table, a further analysis must be made. Taking the mean ages of onset for total males and total females a difference of 2.46 years is found (20.9—

18.44=2.46). The question arises, is this significant or merely due to chance in random sampling? To answer this on the theory of probability, there must be derived the probable error of the difference ($P.E.D$), the ratio of the difference to this probable error ($\frac{D}{P.E.D}$) and by reference to Pearson's tables, the probability (P) corresponding to this ratio.

The values for (P) mean that in average age of onset for total males and total females a difference as great as 2.46 years would be expected only 4.3 times in 100 samples on the basis of chance alone. There must, then, be some cause, inherent in the conditions, to which this difference is due, for a low probability of its occurring by chance indicates a correspondingly high significance in the

TABLE V.

PROBABILITIES (P) THAT DIFFERENCES BETWEEN MALE AND FEMALE ARE DUE TO CHANCE.

Class.	Males.	Females.	Difference.	$P.E.D$	$\frac{D}{P.E.D}$	No. of chances in 100
Total cases. . . .	20.90± .53	18.44± .61	2.46	.808	3.0	4.3
Cases of petit mal only.	24.17± 2.11	23.53± 2.33	.64	3.14	.2	More than 50
Cases of grand mal only.	22.29± .92	17.42± 1.23	4.87	1.54	3.2	3.3
Cases of both. .	19.48± .66	17.93± .70	1.55	.962	1.6	28.1

finding in question. In those patients having petit mal only, the difference is negligible and the probability shows that it might be expected more than 50 times in 100. The cases of both types also have a high probability (28 in 100), but in grand mal only there is a difference of nearly 5 years and a value for (P) of only 3.3 in 100 chances. This is the most significant probability in the table and shows that the difference first found in total males and females is important only in the group having grand mal alone, whereas there is no significant difference between the sexes in cases of petit mal alone, or in those having both types of the disease.

Within the groups for sex it will be noticed that the average age of onset differs in different conditions and the following values for (P) have been derived.

There is no significance in the difference between petit mal only and grand mal only in males, the reason for which may be

found in the large probable error for petit mal; and there is but a small significance in the difference between grand mal only and "both." In so far as this goes, however, it points to a later age of onset in cases of grand mal only. In the females, although the difference is more than six years, the probability of its occurring by chance is as high as 12 times in 100, this being due, again, to the large probable errors. This illustrates the fact that a deviation between two groups cannot be regarded as important without consideration of the probable error. It was seen that in comparing males and females having grand mal only in Table V, a lesser

TABLE VI.
PROBABILITIES (*P*) FOR DIFFERENCES WITHIN THE GROUPS FOR SEX.

Group.	Petit mal only.	Grand mal only.	<i>D</i>	<i>P. E.</i> _{<i>D</i>}	$\frac{D}{P. E. D}$	No. chances in 100
Males.....	24.17 ± 2.11	22.29 ± .92	1.88	2.3	.79	More than 50
Females.....	23.53 ± 2.33	17.42 ± 1.23	6.11	2.6	2.3	12.08
	Grand mal only.	Both.				
Males.....	22.29 ± .92	19.48 ± .66	2.81	1.13	2.5	9.18

difference (4.87) had a greater significance and it should be noted that it is the ratio of the difference to the probable error $\left(\frac{D}{P.E.D}\right)$ that is the important point. Unless the difference is 3 times or more, greater than its probable error, the finding is not considered to be significant.

TYPE OF MANIFESTATION AND MANNER OF ONSET.

Table III was next examined for those frequencies at the foot of the table denoting the number of individuals having petit mal only, grand mal only, and "both," and for manner of onset in the last named class. The χ^2 test was used, this being another method of measuring the probability of getting such deviations as may be noted, by chance alone.

It may be seen that the ratio of males having petit mal only to total males, or 10.48 per cent, differs little from the ratio for

females. In grand mal only, however, and also, to less extent, in those cases having both types, the ratios do show a difference; 33 per cent males as compared to 25 per cent females in the former case, and 56 per cent males as compared to about 64 per cent females

TABLE VII.

RATIOS OF MALES AND FEMALES HAVING DIFFERENT TYPES OF THE DISEASE.

Class.	Petit mal only.		Grand mal only.		Both.		Total.
	No.	Per cent.	No.	Per cent.	No.	Per cent.	
Male.....	37	10.48	118	33.43	198	56.09	353
Female.....	29	11.33	64	25.00	163	63.67	256
Total.....	66	.....	182	.....	361	.....	609

$$\chi^2 = 5.06$$

$$P = .080147 = 8 \text{ chances in } 100.$$

in the latter. By the χ^2 computation the validity of these differences is tested, the value derived for χ^2 being referred to Pearson's tables for the corresponding probability. This was found to be only 8 chances in 100 that the distribution was the result of random

TABLE VIII.

MANNER OF ONSET IN MALES AND FEMALES HAVING BOTH GRAND MAL AND PETIT MAL.

Class.	Petit mal 1st.		Grand mal 1st.		Total.
	No.	Per cent.	No.	Per cent.	
Male.....	74	63.25	43	36.75	117
Female.....	70	70.71	29	29.29	99
Total.....	144	.....	72	.....	216

$$P = .24658 = 24.658 \text{ in } 100 \text{ chances.}$$

sampling. While this perhaps does not carry great weight, it cannot be ignored and must certainly be considered an indication that some factor is causing more males than females to have grand mal only.

The same sort of procedure was tried in a further examination of the cases having both petit mal and grand mal to see if there

were any differences between males and females in their first manifestation of the disease. A high probability was obtained (24.66 in 100) and therefore there is no significant difference here. This is another instance of the fact that observed differences in percentages are not to be relied upon without reference to the probability of their chance occurrence as the result of random sampling.

RELATION OF AGE AND MANNER OF ONSET TO FAMILY HISTORY.

The question of whether age and manner of onset are influenced by a supposedly neuropathic constitution as indicated by the family history was now studied. Tables IX, X and XI show age and type of manifestation for cases having negative "neuropathic" and "epileptic" family histories, respectively. For the purpose of this discussion, the arbitrary definition of "neuropathic" has been given to histories which include any of the conditions enumerated in Table II except epilepsy, while the term "epileptic" has been given to those histories in which epilepsy occurs, either alone, or in conjunction with other neuropathic conditions. In either case, a history was considered positive whether it was direct or collateral. Of course the data contained in family histories is bound to fall short of the actual facts, through ignorance of the patients themselves and of their relatives, but this would not affect the rather curious finding that epilepsy appears in collaterals to so much greater extent than in direct line, whereas in the neuropathic histories these conditions appear in the direct line rather than in collaterals. This may perhaps be explained by the fact that epilepsy is a marked disease and likely to be known and mentioned in connection with distant relatives when other neuropathic conditions would be overlooked. The greater actual frequency in collaterals would then be the result of the greater absolute number of the latter as compared to parents and grandparents. Without knowing the total number of relatives from whom the observed frequencies were derived, it would be impossible to draw any conclusions. Weeks (1915) says, "The history of all patients shows that epilepsy is more often inherited from distant relatives than directly from parents." This would seem merely to say that epilepsy is not directly inherited.

TABLE IX.
AGE OF ONSET OF CASES WITH NEGATIVE FAMILY HISTORY.

Age Onset	Males						Females					
	P.M. only	G.M. only	Both			Total	P.M. only	G.M. only	Both			Total
			P.M. 1st	G.M. 1st	At same time				P.M. 1st	G.M. 1st	At same time	
Under 5	1	9	4	1	2	18	1	4	5	3	21	
5 - 9	2	7	2	-	-	19	4	2	1	-	11	
10 - 14	2	8	5	3	1	21	1	2	4	-	9	
15 - 19	1	5	4	3	1	19	1	3	1	1	13	
20 - 24	1	5	5	-	6	17	-	2	4	1	7	
25 - 29	1	5	5	-	-	9	1	3	2	1	10	
30 - 34	1	3	2	-	4	12	-	3	2	-	5	
35 - 39	2	4	1	-	2	16	2	1	3	1	9	
40 - 44	1	4	4	-	1	10	2	-	-	1	4	
45 - 49	1	4	1	-	2	8	1	-	1	-	2	
50 - 54	2	3	-	-	1	3	-	-	1	-	2	
55 - 59	-	-	-	-	-	3	-	-	-	-	-	
60 - 64	-	-	-	-	-	3	-	-	-	-	-	
65 - 69	-	-	-	-	-	1	-	-	-	-	-	
70 - 74	-	-	-	-	1	2	-	-	-	-	-	
Unknown	1	-	-	-	-	-	-	-	-	-	-	
Total	17	61	32	17	22	159	14	21	18	11	96	
					81					7		

Total	Males.	Females.
Unknown family history	353	256
Known family history	9	9
	344	247

159 = 42.22 per cent of males with known family history.
96 = 38.87 per cent of females with known family history.

TABLE X.
AGE OF ONSET OF CASES WITH NEUROPATHIC FAMILY HISTORY (NOT INCLUDING EPILEPSY).

Age Onset	Males						Females					
	P.M. only	G.M. only	Both			Total	P.M. only	G.M. only	Both			Total
			P.M. 1st	G.M. 1st	At same time				P.M. 1st	G.M. 1st	At same time	
Under 5	2	3	5	4	3	17	1	2	3	4	-	11
5 - 9	5	4	7	2	3	21	2	5	12	-	1	20
10 - 14	1	4	7	4	5	25	-	8	11	5	4	28
15 - 19	2	8	3	3	5	23	-	1	4	1	1	8
20 - 24	1	5	5	3	3	14	1	2	3	1	-	6
25 - 29	1	2	6	2	1	11	1	1	10	1	1	15
30 - 34	2	3	2	2	2	10	1	1	1	2	-	6
35 - 39	1	3	1	-	1	5	1	2	-	-	-	4
40 - 44	1	1	2	-	1	5	-	1	-	-	-	2
45 - 49	-	3	-	-	-	3	-	-	-	-	-	1
50 - 54	-	-	-	-	-	0	-	-	-	-	-	0
55 - 59	1	-	-	-	-	1	-	-	-	-	-	1
Total	16	36	38	18	26	140	7	23	46	13	10	103
					88					73	4	

Direct. Collateral. Total.

Males 117 23 140 140 = 40.7 per cent males with known family history.
Females 91 12 103 103 = 41.7 per cent females with known family history.

Another observation made from these tables is the difference in percentages of males and females having negative and "epileptic" family histories, more males occurring in the former and more females in the latter, while in the "neuropathic" histories the percentages are practically the same. Gowers in his "Epilepsy and other Chronic Convulsive Diseases" states that, "inheritance does not affect the sexes equally" . . . but "plays a larger part in the causation of the disease in females than in males." It is not clear what conditions in the family history he includes in "inheritance," but this is apparently limited to epilepsy and insanity, so that the findings in the present case seem to be in line with Gowers, although much smaller in actual numbers. The χ^2 test

TABLE XII.

RATIOS OF MALES AND FEMALES HAVING DIFFERENT FAMILY HISTORIES.

Class.	Negative.		Neuropathic.		Epileptic.		Total.
	No.	Per cent.	No.	Per cent.	No.	Per cent.	
Males.....	159	46.22	140	40.70	45	13.08	344
Females.....	96	38.87	103	41.70	48	19.43	247
Total	255	.....	243	.....	93	.....	591

$$P = .0653 = 6.5 \text{ chances in } 100.$$

gives a probability of 6.5 in 100 chances and must be regarded as of some significance, but whether this means that epilepsy is more apt to be inherited by females, or that some other extraneous cause is operative in the case of males, this study does not attempt to answer. Some points are suggestive, however, in relation to the latter hypothesis.

Perhaps the chief interest presented by these tables is the way in which the frequencies for age of onset recede toward the earlier years in the "neuropathic" and "epileptic" histories. This is brought out briefly and strikingly in the mean ages for the different groups (Table XIII) and in testing the validity of these differences some highly significant probabilities have been derived. In the case of mean age for males in the "neuropathic" group as compared with that in the negative group, the probability is only 0.8 in 100, or 8 in 1000, that this is due to chance and in the comparison between the negative and "epileptic" groups it is 7 in

10,000. These are very significant probabilities indeed. The difference between the "neuropathic" and "epileptic" groups turns out to be not very important, due to the fact that the ratio of the difference to its probable error is small in this instance. It is not contradictory, however, since the difference is in the same direction; that is, the mean age of onset in the "epileptic" his-

TABLE XIII.

MEAN AGE OF ONSET OF EPILEPSY FOR DIFFERENT FAMILY HISTORIES.

	Negative family history.	Neuropathic family history.	Differ- ence.	P, E, D	$\frac{D}{P, E, D}$	P
Males.....	23.42±.85	19.11±.73	4.31	1.12	3.9	.85
Females.....	20.52±1.10	17.55±.80	2.97	1.36	2.2	13.78
	Negative family history.	Epileptic family history.				
Males.....	23.42±.85	15.94±1.31	7.48	1.43	5.2	.07
Females.....	20.52±1.10	14.69±1.87	5.83	2.17	2.7	6.86
	Neuropathic family history.	Epileptic family history.				
Males.....	19.11±.73	15.94±1.31	3.17	1.50	2.1	15.66
Females.....	17.55±.80	14.69±1.87	2.86	2.03	1.4	34.5
	Males.	Females.				
Negative family history.	23.42±.85	20.52±1.10	2.90	1.39	2.1	15.7
Neuropathic family history.	19.11±.73	17.55±.80	1.56	1.08	1.4	35.5
Epileptic family history.	15.94±1.31	14.69±1.87	1.25	2.28	.5	More than 50

tories is earlier than in the "neuropathic" and therefore agrees with the above findings. From these probabilities the deduction may be made that males with a negative family history more often have onset late in life than those with epilepsy or other nervous disorders in their families.

In females the average age is again later in the negative group though this is not so marked. The reason for the less significant probabilities lies in the fact that the probable errors are larger in the females than in the males.

Comparison of the sexes within the same type of family history brings out little or no differentiation, there being a small difference only in the negative groups, in which case the males have a later age of onset.

Gowers and Aldren Turner both discuss age of onset in relation to inheritance and both conclude that "the stress and strain of life and changing physiological conditions do not to any great extent replace hereditary influences." Their actual percentages of cases with inheritance, however, decrease as age of onset advances. Gowers (*Epilepsy*, p. 17 and 18) gives the following:

Age.	Total cases.	Heredity.
Under 20	1592	41.5 per cent
20-39	496	37.7 per cent
40 and over	134	30.0 per cent

Turner (*Epilepsy*, p. 30) gives a decrease from 22 per cent with heredity in those having onset under 20, to 10 per cent with heredity in those having onset from 41 to 70. Obviously these are not comparable divisions of the age periods in either case and the conclusions are apparently drawn merely from the fact that the question of heredity does not disappear entirely from the histories of those having a late onset. This is a matter of interpretation.

In recent literature, a paper by Thom (1915) on the relation between the genetic factors and age of onset is the only one found which considers this particular phase of epilepsy. He divides 157 cases into various groupings with the object of determining the potency of different factors in family history, viz., epilepsy, alcohol, insanity, migraine, and feeble-mindedness. He also discusses age of onset in relation to whether one or the other or both parents are involved. In 44 patients in whose history epilepsy occurs alone, he finds the average age of onset to be 11.1 years. The average ages of onset in the other groups range from 6.2 to 16 years, but these groups are made up of very small numbers, the largest being the one just quoted, and high probable errors would have been found. It is more than doubtful whether significant probabilities could be derived from such finely differentiated classifications. One interesting statement appears in his conclusions, however, in which he says, "the average age of onset in 157 cases with heredity was a little over 8 years younger than 205 cases computed without references to heredity."

To return to Tables IX, X and XI, of this paper the χ^2 test for different manifestations of the disease brings out the findings shown in Table XIV.

It may be seen that the greatest difference between the sexes lies in grand mal only (38 per cent males as compared to about 22 per cent females) with a smaller difference in the other direction in the column of "Both." The probability is 2 chances in 100 and it must therefore be regarded as significant that within the negative family histories more males than females have grand mal only. In the "neuropathic" and "epileptic" family histories no impor-

TABLE XIV.

DIFFERENT MANIFESTATIONS IN MALES AND FEMALES HAVING NEGATIVE FAMILY HISTORIES.

Class.	Petit mal only.		Grand mal only.		Both.		Total.
	No.	Per cent.	No.	Per cent.	No.	Per cent.	
Males.....	17	10.69	61	38.37	81	50.94	159
Females.....	14	14.58	21	21.87	61	63.54	96
Total	31	.....	82	.....	142	.....	255

$$P = .0241 = 2 \text{ chances in } 100.$$

tant deviations were found. The point of interest here is the fact that the difference between males and females in Table VII, derived without regard to family history, is now found to lie within the group having a negative family history, while the sexes differ comparatively not at all in type when there is evidence of neuropathic constitution.

The question next occurs, is there a difference between those having negative and neuropathic family histories within the groups for sex? Do males with a negative history show deviations in type of disease from males with "neuropathic" and "epileptic" histories? The χ^2 test for negative against "neuropathic" in males gives a probability of 6 in 100 and so it appears that more males have grand mal only in a negative family history and more have both grand mal and petit mal in a "neuropathic" family history.

Strangely enough, the χ^2 test for negative against "epileptic" family histories gives a probability of 66 in 100 and therefore is not significant. This is difficult to understand, for the same sort

of finding would be expected in the latter case as in the former. The actual differences, however, are not contradictory, but only lacking in importance because the numbers in the epileptic group are too small to give conclusive evidence.

In regard to the females, no significant deviations occur between the groups for different family histories with the exception of the first manifestation in those having both petit mal and grand mal. There seems to be a slight tendency to have petit mal first in the "neuropathic" family history and grand mal first in the negative. The probability of 11.5 in 100, which was derived by χ^2 , cannot be

TABLE XV.
DIFFERENT MANIFESTATIONS IN MALES HAVING DIFFERENT FAMILY HISTORIES.

Group.	Petit mal only.		Grand mal only.		Both.		Total.
	No.	Per cent.	No.	Per cent.	No.	Per cent.	
Negative family history.	17	10.69	61	38.37	81	50.94	159
Neuropathic family history.	16	11.43	36	25.71	88	62.86	140
Total	33	.....	97	.....	169	.....	299

$$P = .0634 = 6 \text{ in } 100 \text{ chances.}$$

regarded as significant, however, with no other finding to corroborate it, and therefore this must be considered unimportant.

A search for some explanation of the occurrence of grand mal at a later age of onset in males having a negative family history would be an interesting line to follow. The data contained in this analysis are not considered sufficiently complete to warrant conclusions, but an examination of the table for diseases in patient's history before onset of epilepsy as found in the groups for negative, "neuropathic" and "epileptic" family histories for males may be suggestive. These conditions in many cases are not completely recorded on the punch cards, nor did Dr. Thomas consider them to be complete in the original histories, but as far as they go it is interesting to note that the percentages in the negative group are lower or about equal to those in the other two groups with the exception of venereal diseases, organic nervous diseases, and children's diseases. If the "neuropathic" and "epileptic" his-

tories are treated as one group and the percentages obtained accordingly, the comparison is found to be striking in the case of venereal disease.

TABLE XVI.

PATIENT'S HISTORY BEFORE ONSET OF EPILEPSY IN MALES.

Disease.	Negative family history.		Neuropathic family history.		Epileptic family history.	
	No.	Per cent.*	No.	Per cent.*	No.	Per cent.*
No illness noted.....	28	17.61	13	9.29	8	17.78
Trauma.....	34	21.38	33	23.57	11	24.44
Children's diseases.....	32	20.13	40	28.57	6	13.33
Infectious diseases.....	32	20.13	30	21.43	13	28.89
Venereal diseases.....	26	16.35	11	7.86	3	6.67
Ear, etc.....	5	3.14	5	3.57	1	2.22
Migraine.....	14	8.81	13	9.29	4	8.89
Neuropathic.....	18	11.32	26	18.57	7	15.56
Organic nervous.....	17	10.69	18	12.86	1	2.22
Organic heart, etc.....	5	3.14	7	5.0	..	.....
Gastro intestinal.....	24	15.09	29	20.71	15	33.33

* The percentages are obtained from the ratio of the frequency of any one condition to the total number of cases in the group.

It should be stated that this record of venereal disease includes gonorrhea as well as syphilis and the latter may be congenital or acquired, although there were very few cases in which it was believed to be congenital. Neither are these cases recorded on the basis of positive Wassermann reactions, but merely on the admis-

Disease.	Negative family history.	Neuropathic and epileptic family histories.
Children's	20.13 per cent.	24.86 per cent.
Venereal	16.35 per cent.	7.57 per cent.
Organic nervous.....	10.69 per cent.	10.27 per cent.

sion by the patient of incidence of the disease. The χ^2 test was tried on this distribution of venereal disease in the groups for different family histories and gave a probability of 4 chances in 100.

The incidence of syphilis as an etiological factor in epilepsy is a much debated question and it must be said again that these observations are not offered as in any way conclusive, but merely as suggestive of a connection between this disease and the occur-

rence of epileptic convulsions in males not having an otherwise neuropathic constitution as indicated by the family history.

CONCLUSIONS.

The main points of interest in this study of age of onset and type of the disease manifested may be summed up as follows:

1. Without regard to family history, males have a later average age of onset than females and this lies within the group having grand mal alone without petit mal. Furthermore, this particular type of case occurs more frequently in males than in females.
2. When the cases are separated in groups for different family histories, the age of onset for both sexes is later in the negative group and more markedly so for males than for females.
3. In regard to the finding that grand mal without petit mal occurs more frequently in males than in females, this is found to occur chiefly in the negative family history.
4. Taking the groups separately for sex, males show a greater tendency to grand mal alone in the negative family history, whereas females show no marked differentiation.

This concludes the work as far as it has been carried up to the present time. It is hoped that this paper may demonstrate in some measure, that the function of a statistical analysis of a medical problem is not merely to point out facts that may be learned from the study of large numbers, but to set a limit to the inferences that may be drawn therefrom, by application of the theory of probability. The interpretation of such facts as may withstand this test remains for the medical man.

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FURTHER REPORT ON NURSES' CONDUCT SCHEME.*

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We have reported earlier (*AMERICAN JOURNAL OF PSYCHIATRY*, April, 1922) upon a rating scheme for conduct which assumed the form of a new sort of nurses' notes. In that communication an attempt was made to indicate certain somewhat novel modes of attack upon our problems to which this form of note taking served as an introduction and basis. There remains chiefly to be reported the progress of this scheme during the intervening year.

We have continued the use of this scheme on all patients, to a less extent it has been used at other hospitals and, in general, it may be said that the year's experience has justified all that we earlier had to say as to the practical value of the scheme. "Practical" because, as was indicated in the earlier paper, the theoretical implications seem so far reaching that it is impossible to say at this date what their future will be. We have now about 70,000 records, gathered on approximately 350 patients. It was earlier indicated that frequent amendments of the scheme are made so that much of this data is not comparable in a statistical sense beyond whatever validation may be given to it through such nearer and nearer approach to desired standards as the different revisions indicate.

The scheme has been for us a success. The question naturally arises as to the reason for this. In the earlier communication the relation of the nurse to the scheme was discussed and certainly the points there made have continued to operate towards her interest in the work.

Without re-stating these factors a reiteration of their fundament may be essayed. The hospital of the future cannot be one-sided. The idea that sins of omission may be appealingly gilded by the maintenance of one or two first-class departments will lead us nowhere in psychiatry. Every person in the organization must

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equally be imbued with the spirit of search, and when we say *every* person the nurse is included. The *raison d'être* of this scheme, then, is its implication of the nurse in the research work of the hospital. It is true that we have some very pretty charts, and it is true that through this scheme we are getting a lot of data which we otherwise never would have had; but the real thing is the weaving of the nurse solidly into the warp and woof of the research work of the hospital.

THE NURSE'S COMPETENCY.

The competency of the nurse's record is questionable. Such queries arise, to a large extent, from the bigotry of our instruments. Made to be our servants, the microscope, the daily clinical note, the analyzing balance each bid us to accept no other standard of measurement. We mistrust the nurse because her instruments for measurement are different from our own. On this basis is there not a virgin field for the structure of such departments of research as can be competently measured by the nurse and her instruments? That is, admitting from the first, that in the things for which we are looking the nurse has not the instruments of the same order of precision as ours, we seek to give her a new field for research within which field she is competent. This, of course, for the present, but begs the question of competency—only for the future making it possible. The actual testing can come only from the practical application of such a scheme.

ORIENTATION OF THE SCHEME.

In the past attempts have been made to collect the data which the nurse has. Practically all hospitals have, at some time or other, carried on some form of nurses' notes. Our attempt, then, must not be solely a form of nurses' notes, but a form which is different from and better than those which have been used in the past. The validation of this point was attempted in the field of its appeal to the nurse and in the field of its philosophical implication in the previous communication referred to. It remains to establish what seem to be the other necessary links in this chain—the need of such a plan in a general scheme of hospital research and secondly, the question as to whether such a rating scheme is a practical possibility.

The first of these points is to some extent touched upon in the appeal for a long section method of study published elsewhere (AMERICAN JOURNAL OF PSYCHIATRY, January, 1923). This is not the place to review again the value of recurrent laboratory procedures. However, this is the place to insist that these laboratory procedures require a clinical correlate of a sort amenable to mathematical treatment. After a year and a half we have not arrived at such a clinical correlate—perhaps we never will. It remains, however, an attempt worthy of effort. Whether this mode of attack is the best one is admittedly questionable. We are only at the point now of saying that a clinical correlate is necessary, that we have felt that in the behavior of the patient lies the gateway to this end and that we have felt that, providing the competency of nurses' data could be accomplished, she, and she alone, is the proper person to make this study in behaviorism. We are convinced of the importance of long section studies and equally convinced of the necessity for clinical correlates which can be plotted. Here is presented an attempted answer to this problem. Beyond this we cannot go at the present time.

A STUDY IN BEHAVIORISM.

Is a rating scheme for conduct possible and if it be possible what are the rules for the construction of such a scheme? These questions comprise the last link in the chain.

The answer to the first question was attempted in the first communication. We published then and are now publishing a few of our 350 charts. They seem to justify a tentatively affirmative answer to the first question.

As to the second question. Rating schemes are in vogue at the present time in many fields. The principal is an old one, but its application to the field of conduct quite unique. Due to the *phases* of conduct our fundamental notion is the necessity of division; then, secondly, this division must be on an orderly basis.

The division is cared for through the establishment of what have been for practical purposes called "categories." At present the scheme includes 18 of these. Can the principal of division be validated? It seems a necessity. Conduct of patients in mental hospitals is too complex to be considered, even by the most formal and fine-spun theory, as a unit. Can a single, unit, basis underly the sub-divisions of these categories? The answer to this question

is at the present time "No," though to a considerable extent some such basis has been worked out. The attempt has been, as indicated in the previous communication, to picture the progression from the completely isolated ego to the satisfactorily socialized ego. That is, the unitary basis accepted has been the relative importance of the ego and the alter in the determination of conduct. A third question which naturally arises is the admissibility of the proposition of opposites. At first we disregarded this notion for practical reasons. Those finely turned notions of opposites which might be sensed by the psychiatrist seemed beyond the ken of the nurse. If, however, the present principal is continued, namely, the construction of categories on the basis of deviation from norms it is possible that the scheme will itself fall sooner or later in line with the proposition of opposites. In fact, at the present time in the field of emotional reaction, in the field of delusions, and to a less extent in the fields of sleep, food, weight, room and attire, and conversation we have been forced to employ this notion. It is evident that such a notion finds its most facile expression in the construction of those categories beginning with hypo-function, going through a norm and developing into hyper-function. For certain reasons we have preferred up to the present time to take the view that all conduct abnormalities represent asthenic or hypo-functional disorders. Thus it has been the attempt to state apparent hyper-function in terms of real hypo-function of some other category. We are not attempting to escape the admission of the importance of the notion of opposites in rating schemes in general. It is, however, a notion not to be exhibited in its crude form to the nurse as she attempts to make out the chart.

REQUIREMENTS OF SUCH A SCHEME.

Accepting the dicta given above, we provide for ourselves certain tests to which the various categories may be subjected. These tests will now be discussed, referring the reader to Table III in which he will find a summary of the reactions of each category to each of the five tests. These tests indicate the desired standards in any similar rating scheme.

TEST I.

There must be such clarity in the statements within each category and they must represent real enough conduct events that the nurse

does not report especial difficulty in filling out the category for her patients. The occasional case which is atypical cannot be escaped. Consequently within each category certain troubles in fitting every type of patient are inevitable. Only in this test is sought the nurse's feeling that, by and all, she does not have particular difficulty in fitting her patients to the numbers. Of course, in the end, this is the crucial test. No matter what finely spun theory underlies your scheme, if its application is difficult its value is nil.

The test is, of necessity, somewhat rough. The information has been gathered solely from what the nurses have volunteered during these 18 experimental months. That is, as I talk these charts over with the nurses they are very frank as to what categories are giving them trouble. On this basis the following categories may be said to be satisfactory, by which is meant that for most of the patients in the hospital the nurse usually has little trouble in filling out numbers for the following:

Weight.	Attention.
Exercise.	Orientation.
Food.	Recent memory.
Attitude toward food.	Care of self.
Room and attire.	Hallucinations.
Conversation.	Delusions.
Resourcefulness.	

There is another way of making the same test. The nurse is allowed to use question marks when not sure of her entries. As a purely mathematical proposition one might establish the proportion of questioned entries to the total entries. This should give a mathematical expression of the difficulty. This is hardly fair in that numbers are frequently put down without question mark even though they have been the result of a relatively long and serious study. The test employed above is of course less subject to mathematical statement, but seems on the whole fairer.

TEST II.

The expressions within the category must all be conduct terms. That is, the expressions must be as objective as possible, making every attempt to eliminate interpretation.

Obviously such a test should be carried out with nurses of little or no training. It is of greatest value when carried out on nurses of considerable general training, but no mental training. The test

is made by having several nurses independently make out a chart for one patient at one and the same time. The results of such studies were reported in the article referred to above. Since then we have been able to carry out similar studies in about 200 more instances.

If you employ at one time two nurses, one of whom has had no mental training at all and the other of whom has been in such work for from 5 to 12 years (we always compare any entry with that made simultaneously by the Head Nurse on the ward), the only shared thing is the thing perceived. To the extent that there is interpretation, to that extent are diverging entries made, since training chiefly affects interpretation. Thus if the scattering of the entries is slight, the assumption seems valid that the terms are conduct terms.

In a continuous array certain numbers are of greater value than others and have a "drawing force." Even more important than this is the force of certain terms. That is, the expression going with a No. 6 may be much more clear-cut and concise than are those of neighboring terms. These two factors undoubtedly affect the carrying out of this test, but we are personally convinced that their influence is not great. This is said with even more assurance because one of our chief efforts for the last year has been to "smooth-out" each category in such a way that the nurse, so far as she is aware, is not particularly drawn by one statement or another. That is, at first the nurses were saying "there are a lot of patients like No. 5." We immediately attempted to "strengthen" the neighboring numbers.

The following categories have responded satisfactorily to Test II:

Sleep.	Reaction after visitors have gone.
Exercise.	Resourcefulness.
Food.	Attention.
Attitude towards food.	Orientation.
Conversation.	Recent memory.
Sex ideas.	Care of self.

Some explanation is needed in the case of two of these categories—"Sex ideas" and "Reaction after visitors have gone." In the case of the former, No. 10 was used so frequently that the small error has arisen largely from the "drawing force" of the terminology for that number. The same may be said for No. 5 in the case of "Reaction after visitors have gone."

TEST III.

The terms should be expressions of disparate and real mental content.

It may be objected here that in the study of behaviorism such a demand is entirely beside the point. This scheme, however, does not represent an isolated study; it is part of a correlated group of researches. Its part is an attempt to state the clinical condition of a patient. On this basis, the behaviouristic study is only looked upon as a key to the actual mental status of the patient. Over and above this the previous communication indicated that within each category the progressive steps must be made on the basis of one and the same progression. That progression was pictured as being from the completely isolated ego to the completely socialized ego—a progression involving mental content. That is, we have attempted to rate the relative importance of the ego and the alter in the determination of conduct. On the basis of this, the terms within each category should be expressions of disparate and real mental contents.

This test has been made in the following way and cannot be summarized without an earnest expression of thanks to Dr. William H. Wright, of the Vermont State Hospital, who has in every way given the heartiest cooperation.

Dr. Wright instructed his nurses to carry on these charts. These nurses have never received any instructions from me nor have I even seen them. The charts, after being filled out, were sent to me. Beyond the numbers on the charts there was no data other than the name of the patient. It is true that later the patient's age was added and it is true that on the whole, one could make the assumption that the patients were recent admissions. This last is because we had indicated that in general the very chronic cases would not at the present time be of great appeal to the nurse. With this information I attempted to reconstruct the cases.

Our first group involved nine cases. In four of these our reconstruction exactly fitted, both in diagnosis and prognosis, the facts of the cases as interpreted by the staff at the Vermont State Hospital and as borne out by the later events. In three more the reconstruction did not fit the tentative opinions of the physicians at that time. In two I was absolutely wrong. It may be said

that we were far more successful in the benign or manic depressive group than in the others. The passage of time has put two of the questionable cases in the column favorable to our reconstruction. That is, the psychiatric symptoms were originally vague and have later proven that the reconstruction on the basis of the nurses' notes was correct.

The second series involves seven cases. We may quote the summary of the letter received in answer to the reconstruction.

"You will note that out of the seven cases which I sent you, in five you have made the correct diagnosis. The other two you left undiagnosed because of the insufficient observation note." Both of these latter cases had been observed for only about a week and presented pictures of very deep confusion, the outlook for which it was of course impossible to state. The second group of seven cases involved three of the benign group, two of the malignant group and the two undiagnosed ones spoken of above.

Such a reconstruction is impossible if the terms of the scheme do not represent real mental contents. In carrying out Test III I have attempted to evaluate the importance of the various categories in the reconstructions made. That is, certain categories were used scarcely at all while others seemed of major importance. The reaction to Test III then is judged on this—that the category be of real value in correctly reconstructing the mental picture solely from the nurses' scheme.

There is a lurking danger in tricks of this kind. They tempt one to think that he can make diagnoses by such a scheme as this; just as we used to think that we could make diagnoses simply by the Wassermann. I have no such idea as this. It is a notion which we must absolutely keep away from. However, it is a test that of necessity must be made if we are really to arrive at an answer to the question as to whether the terms involve real mental entities

These categories meet the requirements of Test III:

Weight.	Habit formation.
Sleep.	Orientation.
Exercise.	Recent memory.
Social reaction.	Emotional reaction.
Conversation.	Delusions.
Reaction to visitors.	

TEST IV.

Without being a necessity it yet remains a desirable thing that there be an equality of difference between the separate numbers within each category.

It was earlier stated that a free and intelligent use of the Pearson coefficient of correlation would give this. At present we consider this a dubious mode of approach, especially as there has appeared an easier, quicker, though rougher, way of establishing this point. Of course the No. 10 represents the norm and within any category it is very probable that the No. 10 should be very frequently entered since the chances are that it represents some phase of conduct which is not particularly involved in the psychosis present.

PER CENT OF ENTRIES.

Number involved.	Conversion.	Orientalion.	Reaction after visit.	Taking food.
1.....	2	2	10	1
2.....	7	9	2	1
3.....	11	2	3	4
4.....	11	2	10	12
5.....	5	5	44	25
6.....	8	3	5	0
7.....	14	3	5	0
8.....	3	3	13	4
9.....	10	5	7	8
10.....	29	66	1	45
Total....	100%	100%	100%	100%

Thus for any category filled in for a large number of patients—or, say, for a thousand times—the number of times that No. 10 should appear is indeterminate, but probably large. In the same way, No. 9 is again indeterminate, probably fairly large, but should not appear as frequently as No. 10. As regards the other numbers, there should be fair equality in the number of times which they appear if there be equality of difference between the separate steps. That is, if there are enough different types of cases and enough different individuals the chances are that No. 3 in any category appears just about as often as No. 4 or No. 2. If, as appears in some of the categories, one number such as No. 5 is selected far and above any neighboring number, as a matter of probability there is

not an equality in the steps between the neighboring numbers. Of course, this is all entirely in the field of probabilities and averages, but remembering that the data now involves some 70,000 entries it seems that the question may safely be dealt with in this way.

An example of what is felt to be a satisfactory meeting of this test is present in the categories of "conversation" and "orientation." Unsatisfactory categories are, for example, "Reaction after visitors have gone" and "Taking food." The table on p. 601 is in percentages.

The categories which respond favorably to this test are:

Weight.	Habit formation.
Sleep.	Orientation.
Exercise.	Recent memory.
Social reaction.	Emotional reaction.
Conversation.	Delusions.
Reaction to visitors.	

TEST V.

From certain theoretical considerations, previously reported, the coefficients of correlation between the various categories should be positive, and high or low in accordance with notions established through other branches of psychiatric research.

These coefficients have been calculated for each important revision. We will discuss solely the last two of the twelve revisions. Each coefficient was established on the basis of two hundred entries. An unfortunate difference arose through an improvement in the method. Table I was computed on the basis of two hundred entries and involves forty-six patients. Table II again involves two hundred entries, but was made upon one hundred patients—these latter being different from those employed in Table I. Thus, a certain difference must arise from merely a difference in the material. Due to the greater scattering of the patients, Table II will naturally tend to have lower correlations. By comparing, in the two tables, those coefficients obtained from the six categories which were not changed in the last revision, the difference in coefficients arising simply from the change in method is determined. This difference is—0.02 with a mean error of only 0.05. These two latter figures show that two hundred sets of entries are sufficient to almost entirely remove the influence of

the individual—since the mean error would be much larger if there had been marked difference between the forty-six cases of the first table and the two hundred new cases of the second table.

Table I
Pearson Coefficients for Next to
Last Revision.

	Weight	Sleep	Exercise	Phys. Ave.	Taking Food	Room & Attire	Social React.	Care of Self	Conversation	Resourcefulness	Habit Form.	Attention	Hallucinations	Delusions	Orientation	Insight	Recent Memory	React. to Visitors	Judgment	Ment. Ave.
Sleep	.26																			
Exercise	.26	.04																		
Phys. Ave.	.72	.65	.53																	
Taking Food	.34	.19	.54	.50																
Room & Attire	.31	.15	.59	.48	.64															
Social React.	.22	.21	.41	.44	.51	.76														
Care of Self	.16	.09	.50	.37	.43	.68	.60													
Conversation	.41	.13	.38	.42	.47	.57	.70	.52												
Resourcefulness	.16	.00	.51	.40	.43	.62	.73	.55	.76											
Habit Form.	.20	.07	.43	.40	.42	.67	.74	.48	.70	.69										
Attention	.11	.02	.49	.39	.47	.67	.75	.51	.74	.85	.68									
Hallucinations	.12	.29	.35	.31	.27	.26	.27	.17	.31	.22	.26	.26								
Delusions	.02	.11	.16	.16	.34	.19	.31	.21	.41	.28	.25	.27	.48							
Orientation	.12	.23	.39	.38	.40	.62	.72	.57	.85	.71	.71	.73	.32	.25						
Insight	.11	.09	.33	.28	.38	.43	.50	.35	.63	.65	.51	.59	.34	.32	.64					
Recent Memory	.08	.26	.36	.31	.38	.69	.71	.55	.67	.64	.71	.64	.22	.19	.85	.54				
React. to Visitors	.15	.08	.33	.28	.14	.32	.34	.38	.30	.40	.39	.41	.16	.12	.41	.23	.33			
Judgment	.25	.18	.37	.39	.33	.53	.60	.36	.62	.67	.79	.66	.68	.38	.64	.67	.62	.39		
Ment. Ave.	.23	.18	.52	.51	.58	.75	.83	.64	.83	.78	.82	.85	.63	.61	.77	.69	.73	.48	.71	
Stand. Dev.	.15	.13	.16	.16	.19	.25	.21	.04	.18	.21	.15	.44	.24	.33	.16	.54	.26	.23	.13	.13

Careful and extended analyses of these coefficients have been made and they have been of great assistance in the reconstruction of the categories. This is not the place for the reiteration of these analyses beyond the exhibition of the mode of attack.

Table II
Pearson Coefficients of Correlation
for Last Revision.

	Weight	Sleep	Exercise	Food	Phys. Ave.	Taking Food	Room+Attire	Social React	Conversation	Sex Ideas	React to Visit	React after Visit	Resource.	Habit Form.	Attention	Orientation	Insight	Recent Mem.	Judgment	Care of Self	Emot. React	Halluc.	Delusions	Ment. Ave.
Sleep	.32																							
Exercise	.24	.18																						
Food	.21	.27	.11																					
Phys. Ave.	.47	.65	.50	.46																				
Taking Food	.26	.33	.39	.57	.55																			
Room+Attire	.29	.49	.43	.26	.59	.32																		
Social React	.22	.21	.43	.23	.62	.42	.60																	
Conversation	.18	.20	.22	.27	.36	.45	.48	.67																
Sex Ideas	.11	.00	.02	.07	.11	.12	.07	.33	.09															
React to Visit	.09	.17	.10	.16	.21	.20	.42	.38	.40	.12														
React after Vis.	.12	.17	.20	.29	.30	.42	.40	.43	.50	.07	.55													
Resource.	.34	.20	.31	.23	.41	.45	.43	.62	.61	.16	.41	.38												
Habit Form.	.19	.17	.38	.22	.59	.51	.56	.79	.73	.11	.38	.52	.62											
Attention	.26	.33	.32	.36	.48	.55	.62	.69	.70	.23	.41	.45	.79	.71										
Orientation	.11	.15	.27	.09	.30	.38	.46	.68	.71	.03	.40	.43	.50	.76	.63									
Insight	.19	.17	.38	.07	.28	.34	.38	.48	.50	.13	.42	.40	.42	.53	.49	.71								
Recent Mem.	.15	.12	.26	.15	.27	.40	.45	.64	.70	.08	.39	.40	.60	.69	.60	.44	.68							
Judgment	.21	.26	.24	.33	.40	.54	.50	.58	.63	.07	.38	.44	.50	.67	.62	.66	.60	.60						
Care of Self	.21	.36	.47	.15	.41	.40	.64	.69	.50	.04	.44	.34	.49	.58	.58	.37	.45	.61	.53					
Emot. React	.26	.21	.32	.20	.33	.23	.43	.48	.44	.21	.16	.27	.43	.42	.43	.40	.51	.29	.36	.46				
Halluc.	.19	.17	.13	.06	.17	.14	.17	.22	.25	.07	.16	.10	.23	.20	.20	.31	.27	.38	.20	.16	.21			
Delusions	.17	.23	.06	.23	.30	.27	.04	.24	.20	.26	.24	.18	.34	.24	.28	.17	.28	.23	.38	.13	.48	.16		
Ment. Ave.	.29	.29	.39	.19	.52	.62	.69	.79	.81	.23	.53	.61	.69	.83	.85	.83	.71	.83	.78	.71	.57	.34	.41	
Stand. Dev.	.19	.25	.32	.29	.41	.40	.44	.54	.56	.27	.50	.43	.38	.59	.62	.43	.44	.39	.54	.40	.51	.43	.42	.70

NOTE.—Due to error the “—” sign has been omitted in front of the .04 correlation between “Delusions” and “Room and Attire.” All other correlations are positive, except where preceded by the minus sign.

For instance, in the matter of "weight." In Table I the coefficient between "weight" and "physical average" is exceedingly high. In fact it appears, considering the other coefficients, that the patient's weight is the chief indication of the sum total of his physical condition. This is in accordance with ideas previously established. In Table II this coefficient has fallen. However, two of the five points are involved in the difference in method and the fact that in the second revision another physical factor has been added should in itself have made the coefficient fall even lower. Thus, in the second revision the patient's weight has in reality been made even closer, relatively to the other categories, in its correlation to his whole physical condition. This is an improvement. "Sleep" has also gained relatively in importance. There should be such changes as will lessen the coefficient between "sleep" and "physical average" and increase the two coefficients between "physical average" and "exercise" and "food" respectively. Among the mental factors there is one negative coefficient—that between "room and attire" and "delusions" (Table II). Table I has no such negative coefficients. This negative coefficient is disappointing and necessitates a change in one or the other category. The coefficients between "sex ideas" and any of the other mental categories are persistently low. They are so low that we have been in considerable doubt as to whether this category could be satisfactorily revised. There are persistently low coefficients between "reaction to visitors" and any of the other categories. In Table I this is much more apparent than in Table II—because Table II involves some experimental changes which have not been satisfactory. This low set of correlations is of the greatest interest—being a beautiful and unconscious proof of the nurses' claim that the patient is never the same toward the occasional visitor that he is for the usual routine of the ward. The only high correlation for this category is that between it and "reaction after visitors have gone." This is expected.

The calculation of these coefficients is laborious, but undoubtedly of the greatest value in indicating the lines along which future revisions should be made. So much of the analyses has been included as will indicate the way in which these figures may be used.

The question of the probable error arises and since this is dependent entirely on the number of cases (200) used for correlation it is the same for both tables and is here tabulated:

For coefficients between.	Probable error.
0.00 and 0.09.....	± 0.05
0.10 and 0.19.....	± 0.05
0.20 and 0.29.....	± 0.05
0.30 and 0.39.....	± 0.05
0.40 and 0.49.....	± 0.04
0.50 and 0.59.....	± 0.04
0.60 and 0.69.....	± 0.03
0.70 and 0.79.....	± 0.03
0.80 and 0.89.....	± 0.02
0.90 and 0.99.....	± 0.01
1.00	± 0.00

The categories which successfully meet this test are:

Weight.	Resourcefulness.
Food.	Attention.
Social reaction.	Orientation.
Conversation.	Recent memory.
Reaction to visitors.	Delusions.

REQUIREMENTS FOR RATING SCHEMES.

In working out this scheme it is evident that to a large extent we have employed the method of trial and error. Wherever a category was at all possible of inclusion it was added as being best evaluated through the practical working out of the scheme. In the foregoing there are described in some detail the tests applied to these categories. This was done for two reasons—first, to indicate the progress of our own scheme and secondly, much more important, to try to lay down the fundamental rules for the construction of any satisfactory rating scheme of this sort.

These tests may be briefly summarized as follows:

TEST I.—Is the category easily applicable to the situations which it is expected to measure?

TEST II.—Being a study in behaviorism are the statements behavioristic—that is, are the terms conduct terms?

Table III
Reaction of Categories
to Respective Tests.

	Test I	Test II	Test III	Test IV	Test V
Weight.	+		+	+	+
Sleep.		+	+	+	
Exercise.	+	+	-	+	
Food.	+	+		-	+
Attitude toward Food	+	+		-	
Room and attire.	+		+		-
Social Reaction.	-		+	+	+
Conversation.	+	+	+	+	+
Sex Ideas.	-	+			-
Reaction to Visitors		-		+	+
React. after Visitors	-	+	-	-	
Resourcefulness.	+	+	+		+
Habit Formation.	-		-	+	
Attention.	+	+	+		+
Orientation.	+	+	+	+	+
Insight.	-	-			-
Recent Memory.	+	+	+	+	+
Judgment.	-	-	-		
Care of Self	+	+			
Emotional Reaction		-	+	+	
Hallucinations.	+		+		-
Delusions.	+	-	+	+	+

TEST III.—Are these conduct terms expressions of disparate mental content—that is, does the scheme fit into the total personality of the patient?

TEST IV.—Are the terms of more or less equal value and the divisions of approximately equal distance?

TEST V.—Is the relation of any given category to the other categories such as does not violate previously well established and accepted notions regarding the material?

In Table III the reaction of each category to the various tests is given. The “+” indicates a satisfactory meeting of the conditions of the test. The “-” indicates that the category is unsatisfactory in respect to the test involved. The blank spaces indicate an indifferent reaction. On this basis it is easy to see that “conversation,” “orientation” and “recent memory” are pretty satisfactory as they stand. On the other hand “judgment” and “insight,” for example, are still almost hopelessly beyond repair. At so experimental a stage we are not ready to drop any category once attempted. If after some four or five more revisions any category still shows all “minuses” it should be dropped no matter how important it may seem at the time. We suggest the construction of a table similar to that of Table III in the working out of any such scheme as it has been of enormous value in indicating the revisions to be made.

DIFFICULTIES.

The lapse of the year has allowed of some progress against the difficulties previously reported. The first of these was the existence of over-function in some of the categories. As earlier stated a vigorous effort is being made to state these conditions as hypo-function in other categories. In this respect there has been some progress though this stands today as one of the real troubles.

In the previous article it was stated that the categories were constructed on the basis of ontogenesis. Now there are certain categories which in no sense fall into this group—namely, those of “hallucinations” and “delusions.” These represent anti-social progressions, whereas the other categories distinctly represent social progressions. Here again is a real trouble. There is a theoretical outlet but to date no practical application for this

theory has been found. We refer to Dr. Prince's work in his attempt to establish the notion that hallucinations are accompaniments of sub-conscious reactions which may be portions of an asocial progression. Accepting for the moment the establishment of this contention we are still a great distance from being able to formulate it in any such way as would be applicable to a nurses' rating scheme.

The third difficulty existed in the minor inaccuracies inherent in any new rating scheme. It is in this particular field that considerable progress has been made within the last year.

THE STANDARD DEVIATION.

Consistently the standard deviation has been calculated for all the mental categories. Almost from the first we found a high correlation between the size of the standard deviation and the amount of confusion which the patient showed. Now to the extent that the popular acclaim of Binet's dictum of sampling is followed, the standard deviation becomes of less and less import. Is this not a time for a re-evaluation of the attitude towards the doctrine of sampling? Boldly we have attempted to make our categories such that in recovering and non-confused cases they will show a high correlation. It has been the hope that, through this, the standard deviation will amount to some sort of a statement of the amount of internal mental confusion present. Turning to Table I and Table II it appears that in the earlier revision the standard deviation was not highly correlated with the mental average, but was highly correlated with "judgment" and to a less extent with "insight." This state of affairs has been considerably changed in the later revision and it is a change against our theory. Certainly on the basis of Table I, plus the clinical facts in our 350 cases, it could quite definitely be said that the standard deviation was a good measure of the amount of internal mental confusion present. If with further revision it should eventuate that the standard deviation was merely the inverse of the mental average (and that is certainly the tendency of the last revision) it might as well be dropped.

SUMMARY.

This nurses' conduct scheme has continued in successful operation for the year. It has been successful fundamentally because

it challenges the nurses' cooperation in the research work of the hospital. It has been favorably accepted elsewhere, though on a much smaller scale than that which we are carrying out here.

This scheme represents an attempt at a mathematical evaluation of the clinical condition of the patient and were there the space to publish all of the charts we could establish our contention—that even in its present crude form, this scheme gives a picture more accurate and more helpful than any hitherto made of the clinical progress of psychotic cases. As a clinical correlate for recurrent laboratory procedures some such scheme is a necessity and this scheme represents, to date, at least a hopeful answer to this need.

Such a scheme must have a rational basis. Our own method of meeting this requirement has been described, partly as a history of its progress and partly as some sort of a map for the future construction of such rating schemes.

We have challenged, on the basis of results, the unquestioned acceptance of Binet's doctrine of sampling.

There are now something over 70,000 entries. It seems that this represents, at least in these early states of the scheme, a sufficient amount of data on which to go ahead.

Again I must make my acknowledgments to the nurses of McLean Hospital. Theirs has been a loyalty and interest without which we could never have hoped to embark upon this experimental phase of the scheme. Without their cooperation and helpful criticism we could have gotten nowhere. Again, my wife, through suggestions and constant assistance has assured the progress of the present year.

EXPLANATION OF CHARTS.

The charts are to a large extent self-explanatory.

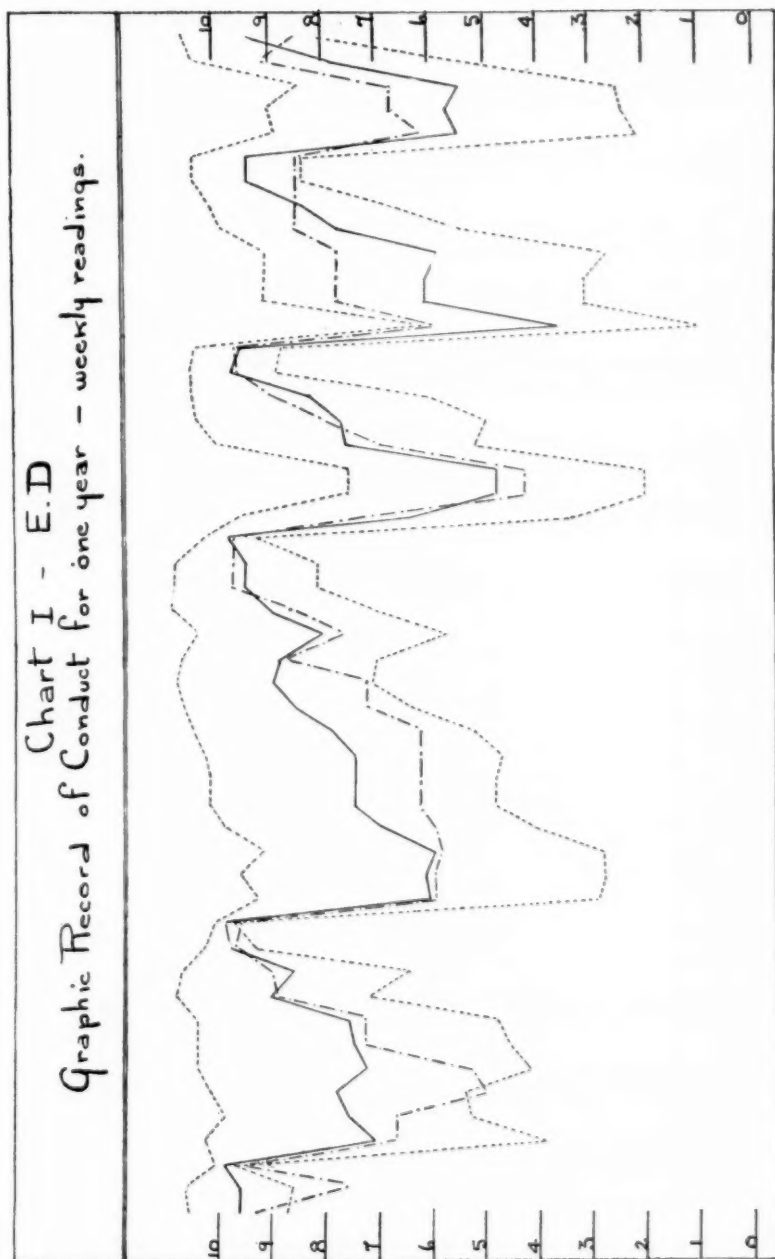
The solid black line shows the mental average.

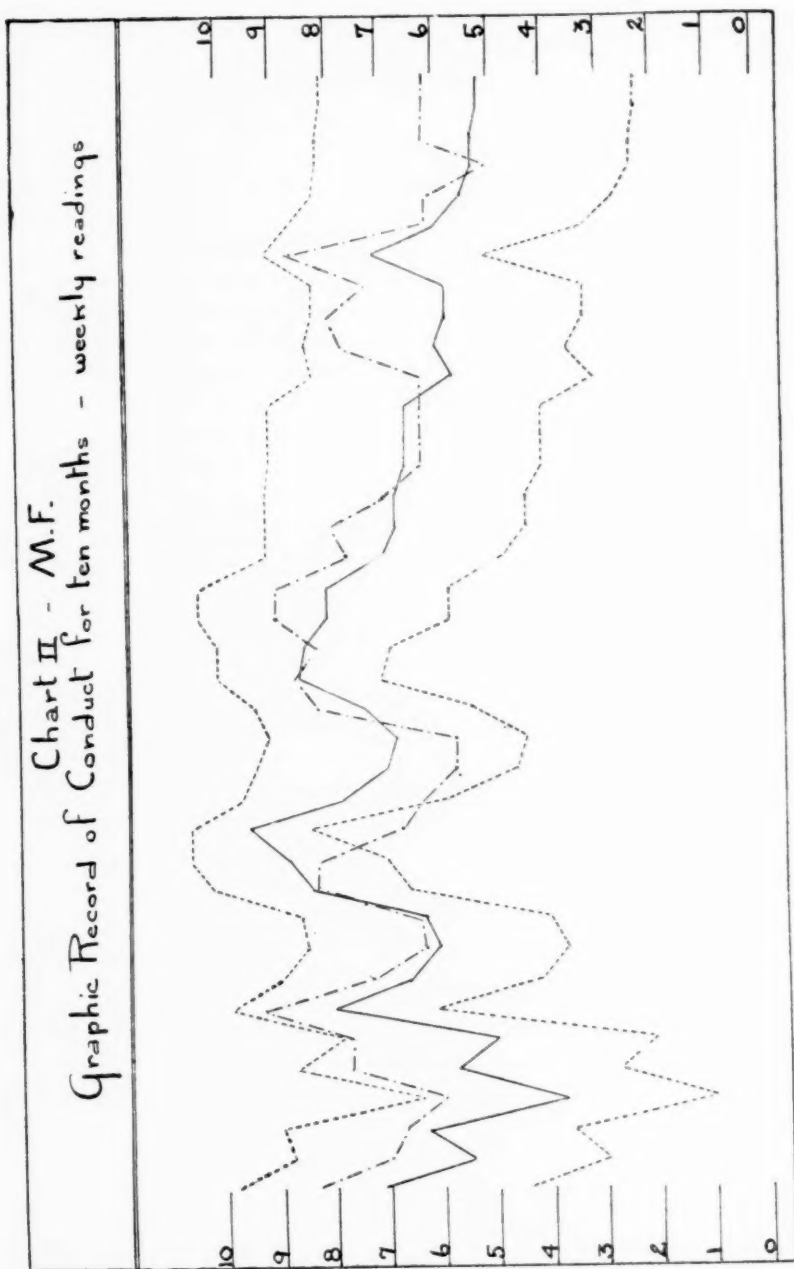
The dot and dash line shows the physical average.

The short dash line shows the limits of the standard deviation for the mental categories. That is, the solid black line is always half way between the two short dash lines. The short dash lines are determined by adding to and subtracting from the mental average the standard deviation.

CHART I.—E. D. Female. Age 60. Chronic circular. Five marked manic outbursts. Note that each successive one is a little more severe and persists for a shorter time. Note marked increase in standard deviation as the average

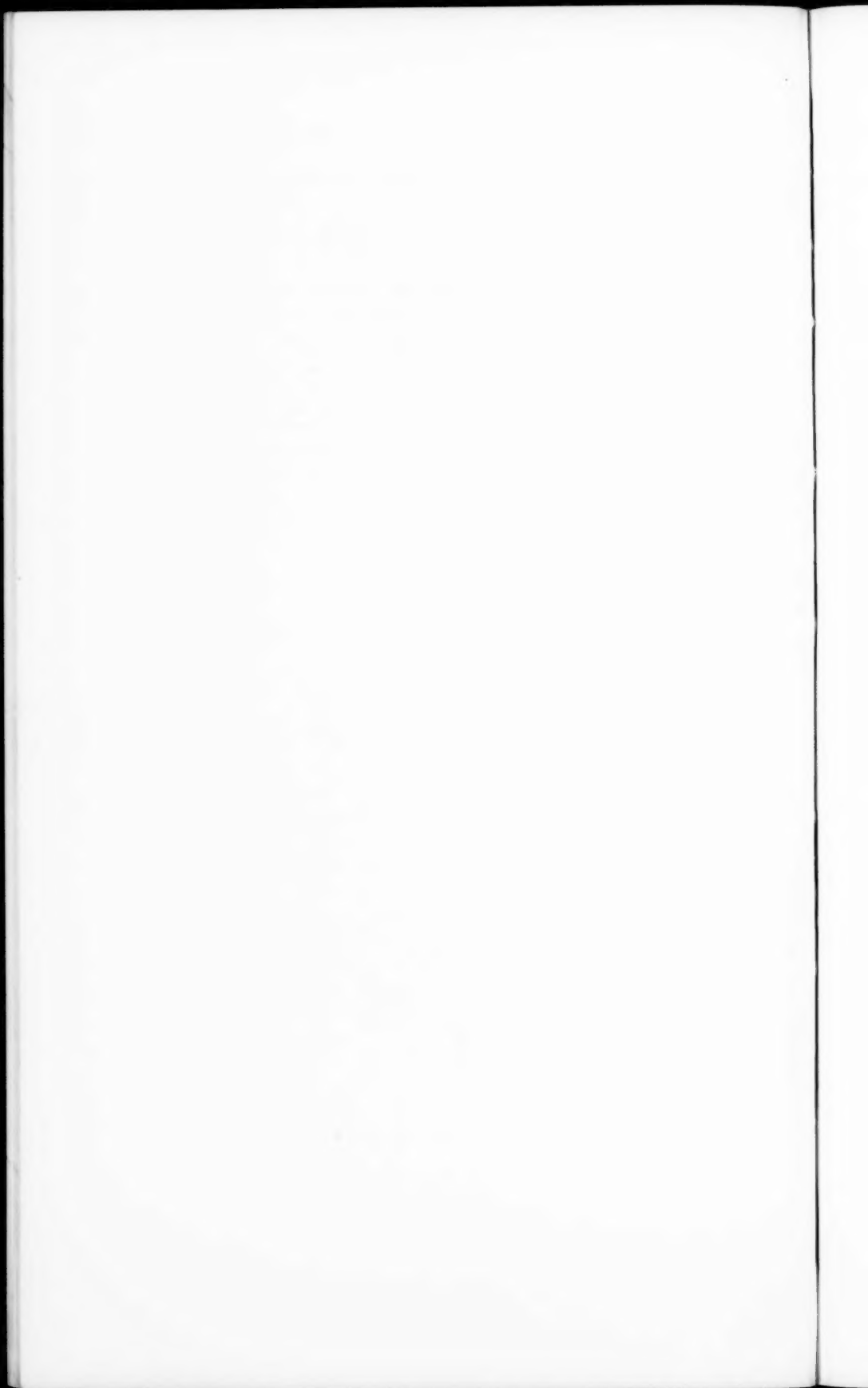
Chart I - E.D.
Graphic Record of Conduct for one year - weekly readings.





falls. This we have found typical of manic-depressive states. As the remissions have been very short the patient has, during the entire year, remained on the disturbed ward. Despite clinical notes, we doubt whether—without such a chart—there could have been so clear a record of the very marked changes in the patient during this period. Even with all its imperfections and inaccuracies it would have been interesting could we compare this chart with some similar one for the attacks of 20 years ago.

CHART 2.—M. F. Female. Age 47. Involution depression. Note the fight towards recovery during the first four months. Note failure of the standard deviation to markedly decrease during this period of betterment. This we have thought of as a bad prognostic sign. Note that this is borne out in the further development of the case. Patient is now slowly but distinctly losing ground. Note that charts of this sort should aid us in determining critical points in the progress of depressions of the involution period.



GENERAL PATHOLOGY AND ITS RELATIONSHIP TO CERTAIN MENTAL DISEASES.*

By ROBT. A. KEILTY, M.D., DANVILLE, PA.

The purpose of this paper is the presentation of the general pathologist's point of view upon the relationship of the general body diseases to certain mental states. The complexity of this problem and the dangerous ground upon which it rests is fully realized, and in the beginning, without offering an apology, too, much is not to be expected in the final conclusions.

This is the age of specialists—now let us begin to speak of correlationists. The general practitioner may do all well and good to take care of eighty per cent of the ills and woes of mankind, but I'll warrant that if medical progress were left in his hands, the empiricisms of the last generations would soon be our rewards. On the other hand, lest our eyes grow dim as we forget to nourish our gastrointestinal track, do not let our specialists reach their narrow peaks without a thought to their fellow workers.

The laboratory at the present time is in some quarters roundly scored and curtly told that, like the baker and the butcher, it is only a cog in the wheel, while in other quarters it is used as the first, the middle and the last resort, and its word taken as final. Let us assume the middle course in this discussion and realize that the basis of all our medical knowledge must be morbid anatomy and upon it must rest physiologic, bacteriologic, chemical and clinical pathology.

The writer has been performing autopsies for the past several years, many of which have been upon mental cases, and the number which fail to show definite brain lesions, but which do show a well marked chain of pathological changes elsewhere in the body,

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has been strikingly large. This condition has been experienced by all doing this work, and I feel should be particularly emphasized.

In a study of unsettled questions we may either add to the sum total of knowledge or we may conclude various results which have a practical clinical bearing. It seems to me that the former will necessarily predominate here, and out of it in the future the latter may result. Our general pathologist too frequently removes a brain when it is only cursorily glanced at, or may be not at all, and turns it over to the technician. It is fixed, and possibly some months or even years in the future, a neuropathologist studies the case entirely from the brain standpoint and the two studies, the general body pathology and the brain lesions, never become correlated, to say nothing of a clinico-pathological study from the standpoint of the whole.

In going over the accepted classification of mental diseases the general pathologist is at once struck by its complexity and by the similarity to his own stumbling blocks. One of these, notably the older morphologic classification of diseases of the kidney, went off into the same endless detail. This has since been very greatly simplified and altered functional correlation has become possible. Since the mental classification is based upon clinical manifestations in a large part, this too must be simplified before any real progress can be made in correlation with general body pathology. The developments of the future will surely be along these lines.

What is a disease? A disease is a reaction to an injury or a stimulus producing cellular and group unit changes responsible for an altered physiology which is characterized by subjective symptoms and objective signs. Certain stimuli are specific in that they produce at all times definite and similar group unit changes. The *treponema pallidum* is a good example of this and cerebrospinal lues is one of the results. We are not concerned with these changes because they are well known and stand out definitely. Other stimuli are not specific in that they do not produce recognizable similar lesions, and indeed in many cases the same stimulus produces entirely dissimilar lesions.

In this study of disease the body is very definitely divided anatomically and functionally into group units, that is, the cardiovascular, the endocrines, the renal, the hepatic, the cerebrospinal, and so forth. No one group can exist without the others, therefore,

when one group is involved in a morbid alteration all other groups must be affected in some manner by the alteration, either directly or indirectly. When a given etiological factor or stimulus affects one group, it also affects other groups in equal proportion to its virulence and those groups are retroactive on still other groups not affected directly by the original stimulus. Thus in any disease the body as a whole must be taken into consideration in the complete study of that disease.

The brain is undoubtedly the most important group unit of the body so far as mankind is concerned but not so far as the body itself is concerned. All others are of equal importance. The adrenals, about which we know very little, are small organs tucked on the upper poles of the kidneys, and yet without their function death would speedily take place.

Altered physiology of the brain is apt to assume primary importance and completely overshadow an infectious morbidity elsewhere, which may be at the bottom of a given case, because of the prominence of the mental side. I know this is often true of the viewpoint of the internist since he is only too ready to turn the mental case over once he has established it as such. Is it not also true of the psychiatrist, not that he wants to be rid of the case, but is he not centering his attentions entirely on the brain? In the long run the study of the case and the interests of the patient suffer at the hands of both but from different angles.

In considering the alterations of function of a group unit the classification may be based upon morbid processes entirely as in the pneumonias, or it may be based upon the clinical manifestation as in the nephritides, where an anatomical basis would lead one into endless disorder. I take it that the grouping of mental manifestations are necessarily clinical because of the wide variations of the anatomical disorders and the problem is thus likened to nephritis. The influence of etiology, however, in any classification must play an important rôle, and when etiology, morbid process and altered physiology, or clinical manifestations are definitely worked out, as in syphilis or the paretic, that particular disease is well-established and the diagnosis of new cases comparatively easy.

In mental diseases heredity occupies a much more important position than it does in other parts of the body and it must be considered as an influencing factor in our particular consideration. Those

mental diseases which are strictly hereditary, that is, due to a decrease of the potential mental ion as transferred directly from one or both parents, are as well understood and classified as are the specific types.

The rôle which the toxæmias play is by no means as clear cut. These may be either bacterial or chemical and often are a combination of both. The mental conditions which we know as confusion, delirium, etc., in the acute recoverable infectious diseases as in typhoid fever, pneumonia, influenza and scarlet fever, may be considered a true psychosis for matters of argument, and, from a correlationist's standpoint, they must be very closely allied to certain types of primary psychoses. In the acute infections the etiological toxæmia, whether directly bacterial or the chemical result of bacteria, clears up and the degenerations of the cerebral cells clear up. In the case of the psychoses the toxæmia, which is probably not directly bacterial in type but a chemical combination originated by bacteria, is constant and even progressive, and the threshold of degenerative repair of the mental cells being passed, the disease remains chronic to the end. This results in exacerbations of up and down, dependent upon the accumulations of degeneration.

The true infectious psychoses as the puerperal forms are pure types of these disorders. The infection may be primarily a bacteriæmia with direct action of the bacterial bodies and their contained toxins upon the brain structure demonstrable by the finding of bacteria within the brain structure both by smear and by culture. In these cases there is no specific reaction to the bacteria and their elective localization for the brain as urged by Rosenow is not necessarily operative. They involve the brain as a part of the general process but importance is given to the mental manifestations because of their very character. These same cultures isolated fail to produce a similar disease in animals because of the simple fact that they have no specific reactions. Again, these same cultures fail to produce equal mental manifestations in another patient suffering from the same bacteriæmia because the brain cells are not involved to the same extent owing either to matters of virulence or immunity protection.

In those types of psychoses due to chronic infections, and I am sure that a very close study will reveal a large number of these in

any institution amongst the so-called "old chronics," focal infection has played a prominent rôle. The term, "has played," is used advisedly because this factor has probably been going on for years and the threshold of degenerative repair in the brain has long since been passed. For this reason the clearing of foci of infection often has little effect upon the clinical course of the mental case although that same case cleared earlier in life might have been not only benefited but completely relieved. This point is certainly well illustrated in syphilis. It is becoming pretty well proven that the chancre stage of syphilis is probably absolutely arrested by appropriate treatment. If this be true, the incidence of syphilitic psychoses should be lower and lower in the future. This is a strong plea for the preventive mental hygienist.

Why are foci of infection operative? For a number of reasons—I do not wish to open up the pros and cons of this question from the mental side, but from the standpoint of the mechanisms and problems of focal infection it behooves the psychiatrist to familiarize himself with the possible relationship of teeth, apical infections, gums, tonsils, chronic bronchitis, gastro-intestinal stasis, including gall bladders and appendices, genito-urinary disorders, especially tubes and ovaries, cystitis, prostatitis and pyelitis. This should be done early in a mental manifestation that the subsequent reactions to these foci may be avoided. In the development of late mental manifestations due to absorption from foci of infection the early hereditary deficiencies must be thought of as strongly predisposing factors. *Vice versa*, the young individual with hereditary deficiencies should be guarded in the development of foci and future mental manifestation avoided. Here again preventive hygiene comes in. This is well illustrated by the following experience of Dr. Pike in one of our extramural mental clinics connected with the State Hospital at Danville: A group of six school children, aged 8 to 12, had shown one to three years' intellectual retardation by psychometric readings. They all presented foci of infection, teeth, tonsils, chronic ears or adenoids. These were thoroughly cleared up, and nine months later five out of the six have caught up to their normal intelligence quotient and are doing their proper grade work. The sixth child has not improved, but he shows an hereditary influence with two imbecile brothers. This is not a new experience, but is here emphasized to bring out the point that this is the place in

life where bodily diseases play a very important part in future mental disorders and much greater results will be accomplished than after the damage has been allowed to get a firm foothold. It is the same old plea—Concentrate on the kiddies and let the old sinners die off.

Foci of infection are active and inactive. The inactive types play no part in distant metastasis but the active foci are continually dumping a small dosage of infection into the general body, and the damaging action of their toxins far outweighs their reactive immunizing qualities. This is on the same principle that, if one lightly scratches the back of one's hand once or twice no damage is done, but when this is kept up constantly day in and day out for years, much irreparable damage will eventually result.

When the action of these toxins is not directly active upon a group unit as the brain but is retroactive from another group unit as the vascular system and thence the brain, the secondary altered physiology may be clinically of greater importance while the primary altered physiology was the initiating factor. This is true of arteriosclerosis. There is probably no other single degenerative morbid lesion found in the brains of mental cases more constantly than blood vessel changes. The arterio-capillary walls are thickened by cellular hyperplasias, fibrous tissue deposits or perivascular round-celled infiltration from a large group of diversified causes. This leads to alteration in blood pressures, changes in the osmotic membrane, changes in the oxygen tension and CO_2 accumulation within cells, to say nothing of the complex possibilities of carbohydrate and protein chemistry within the protoplasm of the surrounding vital cells. Through these explainable altered physiological processes a stimulus, for example alcohol, is known to play a part in a given disease as in chronic hallucinosis, and yet the reaction is a very indirect one, due largely to chemical and retroactive groups.

In studying the autopsy reports of a large number of cases one is at first struck by the diversified findings, but upon closer scrutiny, it may be seen that these changes belong to a large extent to the blood-vascular changes, hyperæmia, congestion, embolism, thrombosis, infarction and softening, and hemorrhage; next in order to the degenerative group, the cloudy swellings and fatty metamorphoses, and finally to the end production, the replacement sclerosis.

This must all bring about stagnation in parenchymatous cells, either localized or general, heart muscle is equally affected with cerebral memory cells as well as neurotonic control cells, and a vicious cycle set up is indefinitely continued. In whipping up the heart muscle, in clearing a degenerative stagnation in kidney secretory cells, in stimulating clogged hepatic cells, in toning up peripheral arterio-capillaries and in relieving passive congestion, necessarily the body as a whole is improved and mental manifestations, altered cerebral physiological responses, are cleared in proportion to the degree of reparative degeneration and the amount of permanent loss or deterioration of structure.

Based upon the principles which we have tried to enumerate those mental cases, which are either directly or indirectly influenced by general body pathology and to which attention should be especially directed, are the seniles, the psychoses with arteriosclerosis, the alcoholics, the drug addicts, the outstanding somatic psychoses, the manic-depressives and dementia præcox. The last two large groups are open to considerable discussion on this point, but work along these lines will certainly lead to a clearer understanding in the future.

The part which the laboratory must play will include, as in the past, serology, but personnel and equipment must be provided to do adequate bacteriology and chemistry. We always look to a new subject for more than it eventually gives up, but I believe blood chemical studies, especially CO_2 , blood sugar and total nitrogen will help to a considerable degree.

In conclusion:

1. Mental diseases are primarily or secondarily dependent upon general body diseases unless they are purely the result of a specific stimulus or hereditary deficiency.
2. In order to more clearly study body correlation, the classification of mental diseases must be simplified either clinically, morphologically or etiologically.
3. Heredity plays a prominent rôle and lowers the mental threshold so that somatic influences, which would otherwise pass unnoticed, become prominent.
4. Somatic influences start in early life and are toxic in nature, either bacterial, chemical or both, and may be especially operative in præcox cases.

5. Blood vascular influences are retroactive and occur in later life leading to hemorrhage, degenerations and scleroses.

6. The future of psychoses rests more with the preventive hygienists, especially where an individual is recognized as a mental hazard.

7. Foci of infection play certain definite rôles and must be removed before permanent changes have been produced by their long continued dosage. A thorough understanding of this phase is necessary and judgment is to be used.

8. I have purposely left out the discussion of the influences of endocrinology, which is still an infant subject. From our own experience, which is in a so-called goitre belt, the thyroid *per se* has probably little influence upon the psychoses.

9. That we are invaded by bacteria from many different sources and that we are constantly receiving the effects, both good and bad, there can be no doubt. In all probability this takes place much more frequently than is generally suspected.

10. The laboratory has a definitely fixed position in hospitals for the insane and should continue its most important morphological studies but should add to these the ever-widening field of clinical pathology.

11. If the psychiatrists will attempt a simplified classification, pathological correlation will speedily follow.

GENERAL PARESIS:

WHAT IT IS AND ITS THERAPEUTIC POSSIBILITIES.*

By H. C. SOLOMON, M. D.,

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(From the Boston Psychopathic Hospital.)

In any discussion concerning the value of treatment in cases of general paresis, we must first obtain a clear idea as to what is embraced by the term "general paresis." A survey of the literature discloses the most divergent opinions as to what may be accomplished therapeutically in this disease. The results reported by different clinicians vary so greatly that one is justified in wondering if the same disease has been under consideration.

General paresis became established as a disease entity with a characteristic pathology in 1904 as a result of the work of Nissl¹ and Alzheimer.² Their criteria for the diagnosis of general paresis may be summed up as follows: a diffuse inflammatory reaction in the cerebrum tending to localize about the blood vessels and in the meninges, the inflammatory elements consisting of lymphocytes with a high percentage of plasma cells; and further a degeneration of the parenchymal cells with a compensatory increase in the glia elements; and some changes in the blood vessels. The fundamental factor is probably degeneration of the nerve cells. However, the diagnosis is only made possible by the presence of diffuse plasmacytosis in the inflammatory reaction. At once the difficulty arises of determining how diffuse and how marked the plasma cell infiltration must be before one makes the diagnosis of general paresis. As Alzheimer points out, there is rarely any difficulty in differentiating paresis from non-syphilitic brain disorders. However, in the case of syphilitic brain disease the differentiation is by no means so easy. The distinction between chronic tertiary syphilitic meningoencephalitis

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and general paresis is at times very difficult, if not impossible. All the elements that go toward making the diagnosis of a chronic syphilitis meningoencephalitis of a non-paretic form are also present in many cases of paresis. The final criterion apparently rests on the amount of nerve cell destruction and upon the amount of plasma cell infiltration. Both of these effects are present in non-paretic neurosyphilis. It would seem, therefore, as if the line of demarcation between these two conditions is one of degree and that at times the one disorder merges into the other.

A pathological study of brains from cases diagnosed general paresis shows marked differences macroscopically and microscopically. There are cases in which the pia merely shows a slight clouding as a result of a thickening of fibrous tissue with only an occasional infiltrating cell present. On the other hand, there are cases in which the pia is markedly thickened and invaded with numerous inflammatory cells, a high percentage of which may be plasma cells. Similarly, when one considers the histology of the cortex there appears a group of cases in which the inflammatory reaction about the blood vessels is very slight and where one has to search section after section before discovering a single infiltrating cell. Again, there is a group of cases in which every section presents a diffuse and marked infiltration of lymphocytes with a very high percentage of plasma cells. Even in a given brain one may find almost no evidence of perivascular reaction in a large proportion of the cortex, whereas in some isolated area a typical paretic picture may occur.

A similar variation exists as regards the degenerative changes. Some brains show diffuse degeneration throughout the cortex. In other cases the amount of degenerative change is extremely slight, while in others a small area of the cortex may show a great devastation, whereas the remainder of the brain will show very little.

The combination of these findings of meningitis, perivascular infiltration and atrophy varies greatly. One may find all very marked, that is, greatly thickened and infiltrated meninges, much perivascular infiltration, and great devastation of the parenchymal tissue. Or one may find very little of these changes, or again one may find marked atrophy and very little of the inflammatory reaction or much inflammatory reaction and very little atrophy.

In cases of general paresis as pointed out by Jakob, one may find evidence of true tertiary syphilitic lesions in the form of gummas throughout the brain. Lissauer's type of paresis, consisting of focalized lesions depending largely upon the vascular changes, must also be considered.

In this brief review it is seen that when one speaks of general paresis one does not thereby conjure up a simple, well-defined and always similar brain picture. The brain showing a considerable inflammatory meningitic reaction with only a very slight degree of parenchymal change with a characteristic parietic picture often found only in the tip of the temporal lobe and nowhere else, is certainly quite different from the brain where the atrophy is marked and generalized throughout a large portion of the cortex.

One must recollect that when Nissl and Alzheimer did their monumental work on the pathology of cases of general paresis, they picked out cases that had run a certain more or less typical course which made the clinical diagnosis of paresis relatively sure. These cases of so-called typical general paresis represent only a portion of the cases which finally received the diagnosis of general paresis. Many clinical groupings have been made to represent the different pictures presented by cases of general paresis. We will call attention to that division made by Nonne³ which is as follows:

- (1) Typical general paresis.
- (2) Lissauer's paresis.
- (3) Atypical paresis.
 - (a) Catatonic.
 - (b) Senile.
 - (c) Foudroyante.
- (4) Stationary.

It hardly seems necessary to mention the difficulty of making the diagnosis of general paresis from the clinical picture alone. Paresis may assume the characteristics of any form of mental disorder and the neurological signs may be essentially wanting. On the other hand, many other forms of cerebral pathology may give a clinical picture quite suggestive of paresis. The difficulty of making the clinical diagnosis unaided by serological findings was clearly shown by Southard⁴ in his pathological analysis of cases diagnosed general paresis at the Danvers State Hospital.

It is not so long ago that the syphilitic etiology of general paresis was established. Indeed, there are some who to-day do not believe that this is the true and sole cause of the disease, notably McDonagh. Nonne,³ in his "Syphilis und Nervensystem," published in 1915, devotes more than 50 pages with the consideration of the relation between syphilis and general paresis. While the Wassermann reaction and Noguchi and Moore's⁴ discovery of spirochetes in paretic brains did a great deal to finally dispose of this argument, the evidence was not absolutely conclusive and left many problems to be attacked. In the first place, Noguchi and Moore found spirochetes only in a small number of the paretic brains. Mott,⁵ Marie and Levaditi,⁷ Marinesco,⁸ Forster and Tomaszewski,⁹ and others have confirmed the findings of Noguchi and Moore, but they also were able to find the spirochetes in only a comparatively small percentage of the cases studied.

More recently, as the result of a more satisfactory staining method as devised by Jahnke,¹⁰ an increased impetus has been given to the study of cerebral spirochetosis in cases of general paresis. Forster in Germany and Wile¹¹ in America demonstrated spirochetes in brain tissue obtained by puncture in living paretics. Valente¹² reports that in 40 paretics on whom brain punctures were performed, spirochetes were found in 70 per cent. The recent work of Jahnke,¹⁰ Jakob,¹³ Hermel,¹⁴ Valente, and others seem to have established without any reasonable doubt the frequency of spirochetosis in cases of typical general paresis. Some of the authors go much further in their investigation, seeking to find the relationship between the spirochete and the pathological processes. In the original communications of Noguchi and Moore, attention was called to the fact that the spirochetes were deep in the parenchymatous tissue away from the blood vessels. The hypothesis derived from this observation was that the spirochete was in a position that could hardly be reached by anti-syphilitic drugs.

A short time later Mott described and pictured spirochetes in the perivascular spaces in cases of general paresis. Jahnke, as a result of a monumental work, believes that he can show that the paretic seizures are due to a "swarming," as it were, of spirochetes just prior to seizures, this being somewhat analogous to what

occurs in malaria in the production of a chill. Jakob, following up this idea of Jahnke, says there are acute histological changes to be found immediately following the attack, which are apparently due to the destruction of tissue following the liberation of spirochetal toxins. When the "swarming" of spirochetes occurs in the region of the motor area and an acute tissue reaction occurs, there is a motor response in the form of a seizure. On the other hand, when the sudden liberation of spirochetal toxins occurs in other parts of the cortex, psychic manifestations are likely to appear. Valente found in the tissue obtained from brain puncture that in those cases where spirochetes were found, there was much pathology of the tissue, whereas in the cases in which the spirochetes were not found, the tissue had a comparatively normal histology. These observations and conclusions of Jahnke, Jakob, and Valente tend to support the hypothesis that there is a direct relationship between activity of the spirochete and the pathological and clinical phenomena.

We would refer to an aphorism of Leredde who says that the difference of opinion concerning the therapeutic possibilities in general paresis arises from two false assumptions, (a) that paresis is not of syphilitic nature and (b) that it is incurable. The work just quoted would seem to bear out Leredde as regards his first statement that too much weight has been placed upon the assumption that paresis is not of syphilitic nature. These observations would seem to establish not only the luetic nature of the disease but the close relationship between the pathology and clinical symptoms and the activity of the spirochetes.

A most important contribution to the parasitology of general paresis is presented by Hermel¹⁴ who made a study of spirochetosis in a group of atypical paretic cases, that is, atypical from the clinical standpoint but which fall under the diagnosis of general paresis according to our present-day conception. He divides these atypical cases into seven groups. Group 1 consists of cases with seizures. Clinically and serologically these cases were typical of general paresis but histologically they showed numerous miliary gummas. Many spirochetes were found in these cases but not in close relationship to the gumma. Group 2 consists of cases showing areas of typical paretic histology, areas of tertiary syphilitic meningoencephalitis and endarteritis of the

small cortical blood vessels. Spirochetes were found in the paretic areas but not in those showing the encephalitic histology. Group 3 included cases of galloping paresis. Of three cases of this group, two showed considerable infiltration and spirochetes were found in these. The third case showed parenchymal changes with little inflammatory exudate and no spirochetes could be demonstrated. The fourth group was that of stationary paresis and in only one case of this group was Hermel able to demonstrate spirochetes. Group 5 consisted of senile and juvenile paresis in all of which spirochetes were found. Group 6 was made up of cases of Lissauer's paresis. In this group spirochetes were not found, and likewise in the seventh group of syphilitic endarteritis of the cerebellar cortical vessels spirochetes were not found.

Jakob¹⁸ summarizes the histology in cases of paresis by saying that there is a variation which is quite similar to the variation seen in the histo-pathological picture, that is, the findings as to the spirochetes varies greatly. For instance, in one group a few spirochetes will be found in only a few areas of the cortex. In a second group the cortex will be diffusely loaded with spirochetes. In the third group colonies of spirochetes are to be found in scattered areas of the cortex, the remainder being free. In the fourth group there is a vascular spirochetosis which may be combined with a certain amount of cortical spirochetosis. He emphasizes that there is no direct parallelism between the number of spirochetes to be found in an area and the amount of infiltration. From this account of the parasitology we are forced to the assumption that the spirochete is the important agent in the production of the paretic brain changes, and that this is an active process that has to do with the multiplication of the spirochetes and the production of a toxin. At times the spirochetes are to be found diffusely scattered throughout the brain, and at other times they are very few indeed. This is analogous to the story of the spirochetosis in visceral syphilis, where in some cases the spirochetes are found in enormous number, for instance, certain cases of syphilis of the liver. On the other hand, in certain gummatous lesions, spirochetes are exceedingly rare. In some cases of paresis the seat of the spirochetes is in the vicinity of the blood vessels and in the perivascular spaces almost exclusively.

SEROLOGY.

The serological findings have been most important in establishing our clinical concept of general paresis. The generally accepted rule is that cases of paresis will give uniformly a positive serology in the cerebrospinal fluids, and the corollary to this is that a negative spinal fluid excludes the diagnosis of general paresis. Our general concept of the serology of general paresis goes further than this and has been helpful in the differentiation between paresis and other forms of neurosyphilis. In general, the differential points may be given as follows: In general paresis the cell count tends to be under 100 cells per c. mm. containing plasma cells, although in small percentage. Globulin and albumin are present, the Wassermann reaction is strongly positive in small amounts, that is, in the average cases of paresis the Wassermann will be strongly positive in from .05 to 0.2 of a c. c. of fluid, and the goldsol reaction will be of so-called characteristic parietic curve. In other forms of neurosyphilis the characteristic spinal fluid findings are somewhat different. In the acute meningeal forms the cell count may rise to several hundreds per c. mm. The Wassermann reaction is likely to be weaker and only give a strongly positive reaction when 0.4, 0.6, or 0.8 of a c. c. of fluid is used, and the goldsol reaction frequently does not give a definite parietic curve. As long ago as 1913, Jakob and Kafka¹⁸ called attention to the danger of sticking too closely to these ideas concerning the serology. In 1920, Kafka¹⁹ published an account of atypical serological findings in paresis with an interpretation. He gives a history of nine cases of paresis confirmed at autopsy, in which the spinal fluid was negative or weaker than the parietic findings or in which the serology became negative as a result of treatment. We are able to confirm these findings of Kafka and will refer in more detail to this matter below. Kafka states that the cases in which the serology was not characteristic tend to occur in cases of stationary paresis or in cases of endarteritis of the cerebral vessels, but he has in his group cases of typical rapidly progressing general paresis.

REMISSIONS.

One of the interesting phenomena of general paresis is the tendency to the production of spontaneous remissions. Just what

happens in cases during remission is a matter of a great deal of theoretical interest and one which has not been satisfactorily established. It is to be assumed that the activity of the spirochetes become lessened either as a result of the lack of virility on the part of the spirochetes or due to the proliferation of immunity bodies by the host. Several cases of stationary paresis with postmortem findings have been described. Stationary paresis may be defined as paresis in which, after the process has developed to a certain extent, it apparently halts and a prolonged remission lasting over a period of years sets in. In 1920 Jakob¹⁸ reviewed the literature on stationary paresis and contributes five cases of his own. He states that he is only able to find an account of five cases in the literature, three having been examined postmortem by Alzheimer, one by Ranke, and one is reported by Kraeplin in his text-book. Jakob details five other cases, one of which was probably a case of congenital syphilis with epileptic attacks beginning at the age of nine. These five cases represented the total number of cases of stationary paresis from 1800 autopsies. In two cases he found a high degree of paretic change throughout the cortex. He interprets these observations as showing that there had been a very slow process that heals, leaving a number of scars, and then later that there had been a lighting up of the process. Four of his cases gave a clinical picture of catatonia and two had auditory hallucinations and paranoid ideas. In three of the cases the serology became weaker as time went on and in two it became entirely negative. He assumes that these cases show the possibilities of therapeutic results in paresis.

We must again call attention to what Leredde calls the second error in the conception of the problem of paresis, and that is, the general assumption that paresis is incurable. Whether or not it is possible to improve cases of typical paresis it seems to us that the logic of making this assumption and then classifying one's cases according as to whether or not they improve is entirely erroneous. This concept of the therapeutic test for the differentiation of paresis from other forms of neurosyphilis received great momentum through the publication of the important monograph of Head and Fearnside¹⁹ in which they set forth the dictum that if the serology in cases of neurosyphilis remains unchanged after six months of treatment, the case is one of general paresis,

and on the other hand, if the serology becomes negative within this period, the case is not paresis. Their conclusions are based upon clinical experience uncontrolled by pathological studies and on cases which were not followed a sufficient number of years to justify their conclusions. The type of treatment used was that of moderately intensive systemic treatment. Their statements have had so great an effect upon clinicians that it seems worth while to devote the time to disprove their contentions. We believe that they are entirely wrong in theory and in fact. In the first place, we would emphasize that there are cases of neurosyphilis which do poorly with systemic treatment but which make clinical improvement and serological recovery when subarachnoid injections or spinal drainage is given. For this point we would refer to a previous contribution of our own on the treatment of neurosyphilis²⁰ in which we pointed out that by changing the type of treatment, cases which showed no tendency toward improvement by one form of therapy made good recovery under another form. We will only detail one case at this point to show that whereas the serology of a patient remained positive for nearly three years under treatment that was as intensive or more intensive than that outlined by Head and Fearnside, it became negative when intraspinal injections were given.

A. K. came under our observation in October, 1917, complaining of a marked insomnia. The physical and the neurological examinations were entirely negative but the patient had a positive blood Wassermann and the spinal fluid was positive in all respects. From October, 1917, to April, 1920, the patient received 57 intravenous injections of arsphenamin with an average dose of 0.3 gram, mercury intramuscularly, and iodide by mouth. There was no improvement in his general condition despite the fact that hydrotherapy, sedatives, suggestions, operation on the nose and throat had all been attempted. The spinal fluid reactions showed a strongly positive Wassermann down to 0.1 c. c., 77 cells per c. mm., globulin 1 plus, albumin 1 plus, and a gold reaction of 4555553100. During the year from April, 1920, to April, 1921, the patient received four intraspinal injections and nine intravenous injections of arsphenamin. Immediately after the first intraspinal injection the patient recorded symptomatic improvement. After the second intraspinal injection the spinal fluid findings were all weaker and after the fourth they were entirely negative. It may be interesting to note in passing, that the blood Wassermann became negative at the end of six months of treatment without any change in the spinal fluid findings. There seems little reason to doubt that the clearing up of the spinal fluid should be attributed to the use of intraspinal injections and

that the intravenous routine alone, at least in the dosage utilized, would not accomplish this effect. Certainly two and a half years of this treatment had been of no avail.

The other point of their dictum, that the spinal fluid does not become negative within six months in cases of general paresis, we believe is also entirely erroneous. The work of Kafka¹² already referred to has shown that cases of paresis confirmed by autopsy might develop, either spontaneously or as a result of treatment, a negative spinal fluid. And we are in a position to present similar cases which show that without any doubt cases of general paresis confirming to the clinical, serological, and histopathological criteria may develop negative serology as a result of anti-luetic treatment in spite of which the case may progress and the patient go on to death.

P. W. was admitted to the hospital in June, 1915. For some months prior to admission he had shown a progressive deterioration, until upon reaching the hospital he appeared to be very demented with almost no evidence of memory for either remote or recent past. He had been expansive, irritable, and violent. The pupils were irregular and reacted only slightly to light. There was speech effort and tremors. The tendon reflexes of the legs were absent. The spinal fluid had a strongly positive Wassermann reaction, globulin in large amounts, albumin increased, 48 cells per c. mm., and a paretic goldcurve. After two and a half months of intensive intravenous arsphenamin treatment the patient made a very fair clinical recovery and the spinal fluid became entirely negative. However, six months later patient had a convulsion, was returned to the hospital markedly confused, at which time the Wassermann reaction was moderately positive in the spinal fluid, there were large quantities of globulin and albumin, 83 cells per c. mm., and a strongly positive luetic goldcurve. Following treatment he again made a symptomatic improvement and at the end of a year his spinal fluid Wassermann was negative. There was only the faintest trace of globulin, 11 cells per c. mm., and a very weak goldcurve. Nine months later he had another convulsion and the Wassermann reaction was then found to be strongly positive to 0.05 c. c. of spinal fluid. There was a moderate amount of globulin, and a strong luetic goldcurve. In this case the spinal fluid became practically negative under treatment to again positive and again to be brought to practically negative with treatment, only to return to positive once more.

Theoretically, it would seem to us that there is no justification of holding to the principle that paretic and non-paretic neurosyphilis may be differentiated as a result of therapeutic procedure. There are cases of malaria, for instance, which apparently cannot

be cured by quinine per os but which may be cured by intravenous injections of quinine and further, there are other cases of malaria which are apparently resistant to quinine treatment in any form. No one would think of maintaining that because the disease was not cured in a certain period by quinine, that the diagnosis of malaria should be given up. Practically, it may be of value to treat all cases of neurosyphilis that are not too far advanced, and if after a period of months no results are obtained, to give up treatment on the basis that one can do nothing for the patient. This is very different, however, than maintaining that those cases which do improve have one form of disease and those that do not improve have another form. As may be gathered from the foregoing, we agree with Head and Fearnside in so far as they emphasize that cases of non-paretic neurosyphilis imitate and duplicate very closely cases of paresis. If one agrees that it is not possible to make a clinical or serological differentiation between paretic and non-paretic neurosyphilis, it follows that all cases must be treated on the chance that they will recover rather promptly. This is highly important practically, but has little bearing on the curability or therapeutic possibilities of general paresis. Before considering in detail the therapeutic possibilities of general paresis, we may summarize the points already discussed.

General paresis is a condition which shows varying degrees of brain pathology. The process involves the meninges, blood vessels, glia and nerve cells of the cerebrum (and the spinal cord as well). It includes inflammatory and degenerative changes. There are great variations in different cases as to the amount of reaction affecting these several tissues. It is difficult anatomically to differentiate in some instances between the malignant paretic changes and the less malignant tertiary syphilitic changes, and the two may be present in the same brain. Clinically, and serologically, it is often entirely impossible to differentiate between the paretic and non-paretic forms of neurosyphilis. The therapeutic test, although of some practical applicability, is theoretically untenable, and in practice often leads to erroneous conclusions.

We may now discuss in some detail the therapeutic possibilities. Spielmeyer²¹ has stated that theoretically there is nothing about the paretic process that excludes the possibility of therapeutic success.

We would recall that the meningeal and perivascular changes are theoretically amenable to therapeutic alleviation. These changes occurring in paresis are similar to those occurring in non-paretic neurosyphilis, in which experience has shown that considerable success may be obtained through treatment. In many cases of paresis the parenchymal degeneration is very slight, and the symptoms apparently due to the inflammatory changes. There is certainly reason to believe that some satisfactory results may be obtained in treatment of this type of paretic case. The parenchymal atrophy is apparently the result of the activity of the spirochete, and if it is possible to kill this organism, this process should come to a halt. With sterilization of the invading organism, there is no reason to suppose but that the inflammatory exudate could be removed as well as the cellular detritus, and that a histological healing with defect should occur. The problem then resolves itself about the possibility of destroying the spirochete. Two modes of attack present themselves: (1) The use of the anti-spirochetal agents which will reach the spirochetes in the central nervous system and destroy them, and (2) an increase of immunity reaction on the part of the host whereby substances will be produced which will combat the invading organism.

The structure of the central nervous system is such that substances put into the blood stream have great difficulty in reaching the deep lying tissue of the central nervous system. Whether the resistance is due to the choroid plexus or to the limiting membrane of Held is of no vital importance. The larger the molecule, the more difficult is its admission into the central nervous system. Unfortunately spirocheticidal drugs are chiefly the heavy metals—gold, silver, mercury, arsenic, and the like. Nevertheless, these drugs, especially arsenic, do get into the nervous system, or at least into the cerebrospinal fluid when introduced into the blood stream as shown by Mehrtens²² and others. At any rate these drugs should produce results upon spirochetes in the meninges and in close proximity to the blood vessels, and we now know that the spirochetes are present in these localities in some cases of general paresis. In an investigation recently made by Solomon and Taft²³ it was shown that anti-syphilitic treatment does produce changes in the histological picture in general paresis. In this study it was shown that the meningeal inflammation was

reduced and the perivascular plasmacytosis greatly diminished in cases which had received anti-syphilitic treatment. We believe then, that the problem is to find the best method of applying our anti-syphilitic remedies so that the drug will reach the location of the spirochetes. In each case the process should be influenced and clinical improvement result.

Let us recall that in many cases, though not all, arsenic may be found in the cerebrospinal fluid after intravenous injection. This would seem to indicate that there are some cases which are more permeable than others. Possibly it is the cases in which there is damage to the choroid plexus that the arsenic is allowed to permeate. This is suggested by Schmorl's²⁴ investigation upon icteric pigment in the cerebral ventricles in jaundice cases in which the choroid plexus was injured. At any rate, some cases apparently allow for more effect of intravenous medication than do others. Aside from the simple intravenous or intramuscular medication, there is a possibility of the direct introduction of drugs into the cerebrospinal fluid system. This may be accomplished by the addition of arsphenamin directly into the cerebrospinal fluid or by the use of arsphenaminized serum after the method of Swift and Ellis or Ogilvie. If these agents have sufficient spirocheticidal properties, and if they are put into relation with the spirochetes, therapeutic results should occur. It therefore is important to learn where these agents should be introduced in order to give the most satisfactory results.

As a result of an investigation by Solomon, Thompson and Pfeiffer,²⁵ it was concluded that drugs or serum introduced into the lumbar subarachnoid space reach the cerebrum only in very small quantities, but that on the other hand, when introduced into the cisternal region or into the cerebral ventricles, they reach the brain in large quantities. It would, therefore, seem that where the effect is desired upon the brain tissue, it is more satisfactory to introduce the drug either into the cistern or preferably, into the cerebral ventricles.

In addition to the methods whereby serum is introduced into the subarachnoid space, there are other methods influencing the course of neurosyphilis. Probably of chief importance is the method of spinal drainage as practiced by Dercum,²⁶ whereby after arsphenamin or mercury is given, the spinal fluid is then drained

off, taking away as much as will come. The purpose of this procedure is to increase the amount of arsenic that gets into the central nervous system. As the fluid is withdrawn and must be replaced, Dercum feels that more arsenic will be drawn into the nervous system by this means. The use of hypertonic salt solutions has also been advised in order to produce a similar situation.

Many attempts have been made to increase the resistance of the patient by the injection of non-specific proteins or other substances which produce hyperleukocytosis. Wagner Von Jauregg²⁷ has worked with tuberculin. Donath has used the sodium nucleinate. Plaut and Steiner²⁸ have injected patients with relapsing fever and malaria for a similar purpose. Whatever the method of attack, there has been a divergence of opinion as to the results obtained. Some have reported satisfactory results, others unsatisfactory results. However, there must be little doubt but that a great many cases diagnosed as general paresis have made thorough and long-standing remissions following treatment. We may give several illustrations of this type of result.

N. H. was brought to the hospital when 48 years of age. Definite history of syphilis was not obtained but symptoms at the secondary stage suggested infection five years before admission. For one year before admission he developed a speech defect. He became very irritable, restless, inefficient, and was found to be confused and became excited and difficult to control on admission. Neurological examination showed Argyll-Robertson pupils, tremor of the tongue, lips, and fingers, tendon reflexes hyperactive, and speech defect. The Wassermann reaction was strongly positive in blood and spinal fluid. Globulin was present, albumin was increased, there were six cells per c. mm., and a paretic goldcurve. Patient was diagnosed a case of general paresis and committed to the Westboro state hospital, where he received intensive intravenous injections of arsphenamin. At the end of six months he was discharged as improved, having recovered from all mental symptoms and has remained entirely well for the succeeding year to date. His spinal fluid rapidly became negative to all tests.

A. G. had his primary infection in 1901. He was given the usual mercurial treatments of that time by one of our most noted syphilologists. Everything went well. In 1916, desiring to get married, he had a Wassermann test performed upon his blood serum which was negative. But a year later, in 1917, he began to have symptoms suggestive of neurosyphilis—chills, sweats, and tremors. He was given intravenous injections of arsphenamin and mercury but he continued to grow worse. By November, 1919, he had a full-blown picture of taboparesis. He was confused,

his memory was poor, he was unable to care for himself, his knee jerks and ankle jerks were absent, and he seemed quite demented. At this time the blood and spinal fluid reactions were all strongly positive. He received some intravenous arsphenamin and several intraspinal injections but failed rapidly. In the middle of December, 1919, he was trephined and given an intraventricular injection of arsphenaminized serum. The ventricular fluid at this time was essentially negative although the spinal fluid was strongly positive. Following the first intraventricular injection patient became excited and difficult to control. However, this treatment was continued and improvement began. Interestingly enough, coincident with improvement the ventricular fluid became positive. Improvement continued and the spinal fluid became almost negative and for over two years the patient has been employed by a municipality as a civil engineer.

A. W. was brought to the hospital in his forty-sixth year from the court, having been arrested for grabbing a woman's purse and running away with it. The patient had been a successful business man, and the larceny was entirely out of keeping with his past career. The history showed that for some months he had been very peculiar, attempting to strike his child with a red-hot poker, embracing his wife in the street car, sleeping in the midst of business transactions, and in general, showing many abnormal mental symptoms. A couple of days after his entrance into the hospital, he had an apoplectiform attack, with a left hemiplegia, the symptoms of which lasted less than 24 hours, and were followed by a wild excitement. The blood and spinal fluid gave positive Wassermann reactions; there were 75 cells per c. mm., and a paretic goldsol reaction was obtained. Several months of semi-weekly injections of arsphenamin of 0.6 gram each, resulted in symptomatic improvement of the patient, and at the end of three months his spinal fluid findings were negative. Seven years have now elapsed since his return to the community, and he has had no recurrence of symptoms.

These patients conformed in all essentials with the diagnostic criteria necessary for the diagnosis of general paresis. They had the neurological, psychiatric, and serological findings upon which the diagnosis of paresis is made, and in a comparatively short time they were returned to normal as a result, without much question, of anti-syphilitic therapy. They did not, of course, conform to the criteria of Head and Fearnside, which says that if recovery occurs, the case was not general paresis. It is possible that these were cases without the typical pathology of paresis. It seems definite, however, that antemortem it would be impossible to differentiate these cases from those of typical paresis, but there is no reason to suppose that without treatment the course would have been other than that of a progressive disorder leading to death.

We must be cognizant at all times of the possibility of the combination of a practically latent neurosyphilis and a psychosis. Latent syphilis is by no means rare and in such patients psychoses of a functional type may occur without any relation to neurosyphilis. In such instances the diagnosis of paresis is likely to be made. This may be illustrated by the following cases:

J. R. was committed as a paretic. She was confused, emotionally unstable, and her memory was exceedingly poor. The blood and spinal fluid Wassermann reactions were positive, there were 80 cells per c. mm., globulin and albumin in excess. The pupils were stiff and unequal. The knee jerks were sluggish and the ankle jerks could not be obtained. A few months of treatment were sufficient to produce a negative spinal fluid and for seven years the patient remained apparently entirely well both physically and mentally. She again developed a psychosis very similar to the psychosis of seven years previous. However, the serology had remained entirely negative both as to blood and spinal fluid, whereupon one may assume, both from negative serology and the type of psychosis, that she is suffering from a mixed form of manic-depressive psychosis and that the neurosyphilis was probably coincident rather than causal.

F. W. was admitted to the hospital in May, 1917, in his forty-sixth year of life after a suicidal attempt. He was found to be greatly depressed, retarded and to have a defective memory. The physical examination showed unequal stiff pupils, speech defect, unequal tendon reflexes. The blood Wassermann reaction was negative but the spinal fluid Wassermann was positive in 0.5 c. c. dilution although negative in higher dilutions. There were 71 cells per c. mm., globulin present, albumin increased, and a paretic gold reaction. Under anti-luetic treatment the spinal fluid became quite negative and except for minor changes, remained negative thereafter. He made a good mental recovery also, but has had several subsequent attacks of depression. In the last one, occurring in 1922, he was successful in his attempt at suicide.

The family history is very suggestive. The father was a hard drinker and died of apoplexy at 65 years of age. One paternal uncle committed suicide during a depression. His mother had a psychosis prior to death. Her death resulted from a fall from a second story window and was probably suicidal. One sister, who was psychotic, committed suicide by drinking poison at the age of 41. Another sister is considered quite unstable. It would, therefore, seem that our patient's tendency to depression and suicidal attempts can be more readily related to the familial tendency than to a definite connection with neurosyphilis.

There is another group of cases, however, which are less open to any criticism or chance of error in diagnosis, which give rather convincing evidence that therapeutically successful results may be obtained in the treatment of general paresis. We refer to

cases in which the disease takes on the stationary form as a result of treatment. Stationary paresis occurs spontaneously only very rarely. This condition is met with very much more frequently in patients receiving treatment than in those where it occurs spontaneously without the intervention of treatment. This type of case may be illustrated by the two following patients:

C. H. has had a remission or a stationary condition lasting five years to the present time. He was admitted to the hospital in February, 1917, at the age of 44. History of infection dated back 18 years, at which time he had three years of irregular treatment. For a year prior to admission, patient had shown mental changes. He was apprehensive, irritable, inefficient, complained of feeling tired and sleepy. Speech defect was of one year duration. On admission his memory was quite defective, he had very little knowledge of current events. He was very irritable, euphoric, and without insight. The pupils were small, irregular, and reacted very sluggishly to light. The knee jerks were hyperactive. There was marked speech defect. The Wassermann reaction was strongly positive in the blood and in the spinal fluid. The spinal fluid contained an increased amount of globulin and albumin, 46 cells per c. mm., and a strong paretic gold reaction. The patient was put on intensive arsphenamin treatment accompanied by intraspinal injections of arsphenaminized serum, mercury intramuscularly, and potassium iodide by mouth. In the course of a few months he had made a satisfactory clinical improvement which has continued for a period of five years, during which time he has been able to take up a new line of work, clerical in type, and handle it efficiently.

At the end of four months of treatment the serology was practically unchanged except that there was a lower cell count. However, at the end of two and a half years the Wassermann reaction was negative in the blood and positive in the spinal fluid in 0.3 c. c. dilutions and negative in lower dilutions. Only a small amount of globulin was present, and the goldsol reaction was negative.

H. O'B. entered the hospital in February, 1917, having been brought to Boston from California, where he had been committed as insane. On admission he was quite tremulous, euphoric, memory particularly of recent events, very defective. He gave a history of syphilitic infection ten years previously with very little treatment until symptoms of general mental and physical disability had occurred a number of months prior to his admission. Pupils were small, the right giving an Argyll-Robertson reaction, the left reacting slightly to light but better to accommodation. The tendon reflexes all were hyperactive, and there was a marked speech defect. The Wassermann reaction was strongly positive in both blood and spinal fluid. The spinal fluid showed globulin, increased albumin, 7 cells per c. mm., and a mild paretic goldcurve. During the six weeks following patient's admission, he received 12 injections of arsphenamin 0.6 gram each. He developed an extremely marked dermatitis exfoliativa from which he was very ill,

and which did not heal for more than six months. However, with the improvement in the skin condition he had made a very good clinical improvement and was able to go back to work and has remained capable and efficient for the ensuing five years to the present time. The serology slowly approached normal and 18 months after the beginning of his treatment it had reached normal. At the present time the Wassermann reaction is negative in both blood and spinal fluid. There are 3 cells per c. mm., a slight trace of globulin, and a mildly positive luetic goldcurve.

In both these cases the diagnosis of paresis could be made to-day from the clinical picture; namely, neurological findings, tremors, speech defect, and a slight reduction of the personality. One patient (C. H.) still shows spinal fluid changes, whereas the fluid in the other patient is practically negative. Nevertheless, in both cases the progress of the disease has been halted, the patients have continued to hold the improvement which they made during treatment for a period of over five years, and are better in every respect now than they were when treatment was commenced. The occurrence of this stationary type of disease being so much more frequent in the patients that are treated than those that are not treated, one cannot avoid the assumption that treatment was responsible for halting the progression.

Remissions of one to three years duration are very frequent in patients who have received treatment, occurring at least five times as often in the treated than in the untreated group, and lasting much longer. It is a rather common experience in any group of institutional paretics who receive treatment that there is less excitement and abnormal conduct than in untreated paretics. These observations show that something is accomplished by the anti-syphilitic treatment of paretics, although not all that might be desired. It has been stated by some that the cases of paresis receiving treatment have the duration of life shortened, that is, that the average length of life of the paretic receiving treatment is less than that of the paretic who was not treated. We believe that this is entirely erroneous. The majority of patients with paresis whom we have treated have lived more than two and one-half years after the onset of the psychosis, two and one-half years being the average duration of life for untreated cases of paresis after the onset of the psychotic symptoms. What is seen fairly frequently is that after a remission of one, two, or three years, the patient will have a relapse and death will occur in a

comparatively short time. Apparently there occurs a sudden lowering of the resistance of the individual, probably a rapid growth of spirochetes with the production of much toxin and destruction of tissue and comparatively rapid downward course. This type of reaction may be illustrated by the following case:

B. D. was admitted to the hospital at the age of 39. On admission he was very excited, loquacious, euphoric, and expansive. The onset of his psychosis was quite rapid, mental symptoms having been noticed only a few days before admission. There was inequality of pupils, active tendon reflexes, otherwise neurological examination was negative. Blood and spinal fluid gave positive Wassermann reactions. The spinal fluid contained 24 cells per c. mm., globulin, excess of albumin, and a strong paretic goldcurve. Patient received intravenous injections of arsphenamin and at the end of six months made a very good clinical recovery. He returned to work as a telegraph operator and his work was satisfactory as to speed and accuracy. Social reactions were entirely normal. Nine months later patient had a sudden attack of confusion lasting a few minutes, which disturbed him greatly and brought him to the hospital for advice. Two days later he became extremely maniacal, hospitalization became necessary, he failed rapidly and died at the end of a couple of months.

The problem of treatment of general paresis offers a certain amount of difficulty due to the lack of any sufficiently powerful spirocheticidal drug. That this is so is seen in the consideration of cases of syphilis effecting organs other than the central nervous system. It is by no means uncommon to find mucous membrane lesions occurring in patients who are receiving arsphenamin and mercury. These lesions occur during the administration of the drug and at times are resistant to any form of therapy. Spirochetes in great numbers may be demonstrated in such lesions and are apparently immune to the drug. A similar condition undoubtedly occurs when the spirochetes are located in the central nervous system where even a smaller amount of drug can reach them. There are cases of syphilitic meningitis which do not react favorably to anti-syphilitic remedies. Here the difficulty is not explained by structure of blood supply and the tissue involved, but rather that our drugs or methods of applying them are inadequate. We must admit that from the practical standpoint the problem is more difficult in cases of paresis than in certain other forms of neurosyphilis. This means that we must use methods at our command more intensively than is necessary in certain other forms of syphilis. The conventional routine treatment of early

syphilis namely, a half-dozen injections of arsphenamin weekly, followed by twelve or fifteen injections of mercury at a like interval, is rarely if ever of any benefit to the parietic. If one is to obtain results, the treatment must be pushed to the limit of the patient's tolerance. If depending upon the systemic treatment, arsphenamin must be given at frequent intervals over a considerable period of time. When this does not produce satisfactory results, other methods must be relied upon. For this purpose intrathecal injections have some value, but as we have pointed out, the injection of serum into the lumbar region is theoretically and practically inefficient as compared to cisternal or ventricular injections, because it does not reach the cerebrum in any considerable amount. Therefore, we have lately adopted the procedure of combining the methods of intrathecal therapy and intravenous therapy and spinal drainage, and treated the patients somewhat as follows: semi-weekly injections of arsphenamin associated with spinal drainage, lumbar, cisternal, and ventricular injections of serum given at intervals of three or four days, and repeated for a number of months. The results obtained by this procedure have been somewhat more satisfactory than when less vigorous treatment was given. It would be logical to add to this methods which apparently have had some therapeutic benefit by increasing the immunity reaction of the patient, such as the tuberculin or sodium nucleinate injections.

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DISCUSSION.

DR. MITCHELL.—Mr. President, I would like to supplement Dr. Solomon's contribution this afternoon with a report of a hospital procedure which has been carried on for the past 10 years at the Warren State Hospital in the following manner: Each patient upon admission has been given a blood Wassermann test, repeated frequently, if such action was deemed necessary. Every patient showing a positive blood Wassermann has been given one or more lumbar punctures and all patients showing unquestionable mental or neurological symptoms that might be attributed to organic disease have, also, had the fluid examined.

At first we used the Swift-Ellis treatment freely, together with such modifications as were suggested by various workers, but finally fell back upon the use of arsphenamine and mercury intravenously, believing with many others, that in paresis, at least, the results obtained by this method were better than by any other single procedure—an opinion generally held by other psychiatric and neurological workers.

We have used treatment freely in all cases and have followed the suggestions, made by Dr. Solomon, of frequent dosage continued over long intervals—hoping that by this step we might improve the condition in cases of neurosyphilis that we know to be susceptible to treatment and possibly give similar aid to early paretics. We have had no experiences that would justify us in believing that well established paresis can be cured by any known treatment, though, unquestionably, long remissions do occur and more frequently in our experiences among the treated than the untreated cases of years ago.

Unfortunately, we have no positive tests which enable us to differentiate meningeal, vascular, gummatous neurosyphilis from the parenchymatous involvement seen in paresis. At one time we hoped that the Gold Sol test

might be helpful in this differentiation. Weston demonstrated that the substances producing the Gold Sol reaction and that producing the Wassermann reaction are distinct, and can be separated from each other by filtration methods, and we have found two cases who showed a positive Gold Sol test in the paretic zone for one or more years prior to the finding of a positive Wassermann test in a series of examinations frequently repeated, and in our experience the Gold Sol test is more delicate and continuously present than the Wassermann.

Our experience has been similar to that quoted by Dr. Solomon—more frequency of remissions and general improvement of the condition of treated paretics, though many of our patients who showed remissions in earlier years have returned to die, and if any given case of unquestionable paresis should remain well for any definite period, we should be in doubt as to whether we had been dealing with a genuine paretic or a patient showing some form of neurosyphilis more amenable to treatment than paresis has ever been.

In connection with this treatment of patients, we have endeavored to secure the family co-operation for blood and fluid tests of other members of the paretic's family and to inaugurate treatment in such patients when serological evidence of syphilis was found. Through some activities in the State Medical Society of Pennsylvania, which have led me to various county medical meetings, it is apparent that many general practitioners ignore the possibilities of the family infection and even fail to recognize the character of the disturbance in the patient whom they commit, and it is not uncommon to hear reputable family practitioners state that cases of neurosyphilis are very rare in their practice, even when they are committing paretics to the hospitals for mental disease—not recognizing the character of the underlying process.

Until there is a more general knowledge of the character of neurosyphilis of various types and the methods required to reduce its incidence to the lowest possible minimum, there is little hope of any reduction in the number of paretics now annually committed. We believe that 5 per cent of syphilitics develop neurosyphilis in some of its forms and that the number of such cases can be reduced only by regarding a patient once infected as a person to be watched carefully for the evidences of late syphilis for the rest of his days and to receive prompt and adequate treatment when symptoms, either serological or clinical, warrant such course.

DR. BABER.—Mr. President, I would like to ask Dr. Solomon to speak further upon the desirability of discharging paretics as recovered.

In the last two years we have treated our paretics—225 of them—and of that number we have had more than 30 whose manifestations have cleared up and some of those whose serological factors were satisfactory. In seven other institutions we found no less than 13 recorded as discharged recovered. I would not think of discharging patients of this class whose manifestations are pictured as negative. They will be discharged, however,

as improved because they have returned to their former occupation. I would like to know the best course to follow in treating these cases.

DR. SOLOMON.—Mr. President, as to the question of curing paresis and neurosyphilis, most of us would probably say that we have some chance of curing syphilis in the primary stages, but we haven't much possibility of doing anything for cases with syphilis of 20 years' duration. We can get improvement. Whether the patient recovers from the psychosis is another thing. He will probably have a recurrence of that psychosis. We have rarely discharged a manic-depressive without feeling that he may be coming back. Perhaps, he has been in one or other of the institutions and has been discharged as recovered but he should have been considered as improved. It is very dangerous to talk about discharging paretics. They may get better but ultimately they will remain under our care and treatment. Most of the patients I have mentioned whom we first saw five or eight years ago are still members of our clinics and I think that is the safer policy for all of us to adopt— not to expect anything quite so good as a definite cure.

SOME IMPORTANT FACTORS IN THE HOSPITAL TREATMENT OF PSYCHONEUROTIC EX-SERVICE MEN.*

By THOS. J. HELDT, M. D.,

Formerly Surgeon (R) U. S. P. H. S.

In the hospital treatment of disabled ex-service men and women, and especially psychoneurotic ex-service men and women, many important issues have come to general medical attention. But those issues, with important associated factors, have been brought probably most forcefully to the attention of the medical personnel treating that type of case.

The first federal institution set aside for the almost exclusive treatment of the psychoneurotic veterans of the World War was U. S. P. H. S. Hospital No. 37, at Waukesha, Wis. It was opened for the reception of patients July 10, 1919. Since the observations on which this paper is based were made at that institution, the reader is kindly asked to bear that reference in mind.

To attempt to treat adequately in the space of this paper all the issues that have arisen would be presumptuous. Hence, only a few of the more important ones will be reviewed. The following will be briefly considered:

First, Should the psychoneurotic be hospitalized?

Secondly, What is the frequency and importance of organic disease in the psychoneuroses?

Thirdly, To what extent must adjustment of the psychoneurotic's social problems be met?

The many questions revolving about the psychoneurotics in reference to federal compensation, federal rehabilitation, government insurance, permanent disability, etc., can only be referred to indirectly.

* Read at the seventy-eighth annual meeting of The American Psychiatric Association, Quebec, Canada, June 6, 7, 8, 9, 1922.

HOSPITALIZATION OF PSYCHONEUROTICS.

The problems involved in the hospitalization of neuro-psychiatric cases among the disabled war veterans have been stated at various times by the U. S. P. H. S., by Salmon,¹ and others. In December, 1920, Salmon found that of all the disabled, 41 per cent were classed as Tb., 32 per cent as general hospital cases, and 27 per cent as neuro-psychiatric cases. He also found that 66 per cent of the neuro-psychiatric cases consisted of psychoses, 19 per cent psychoneuroses, 8 per cent organic nervous diseases and injuries, 5 per cent epilepsy, and 2 per cent mental deficiency. Since almost one-fifth of all the neuro-psychiatric cases in hospitals, then, are psychoneurotics it cannot be denied that their hospitalization, at least among ex-service men and women, constitutes an important hospital problem.

In civil life a considerable number of psychoneurotics are passed from one professional hand to another, or are shifted from one division to another in general or special hospital. Still others find their way into various private sanatoria, many of which take only psychoneuroses, so-called borderline cases, or incipient and easily managed psychoses. That psychoneurotics are hospitalized would certainly then appear to be common knowledge. Whether or not they should be hospitalized is a more difficult question.

The term "psychoneurosis" has come to be used very loosely. It is frequently applied to a temporary state of tension, transient anxiety or a brief period of over self-concern. Such temporary rereactions, especially since they can often be dispelled by a little explanation or a little appropriate counsel, should not, in the writer's opinion, be designated psychoneuroses. For practical considerations it would probably be better to err in the opposite extreme and not recognize any "functional nervous disorder" as representing a psychoneurosis unless there be present complex, mental conflict, or social maladjustment to the extent of incapacitating the individual for carrying on his work in satisfactory manner. Granting at least a somewhat narrower application than that commonly implied in the designation "psychoneuroses," hospitalization for the conditions they represent likewise becomes a more concrete problem. But

¹Salmon, Thos. W. Amer. Legion Weekly, Vol. 3, January, 1921.

at the outset one naturally asks what are the present extra-hospital facilities for caring for psychoneurotics? There are none, other than the out-patient clinics and dispensaries, and those equipped to care for psychoneurotics are comparatively few. The number adjusted through contact with individual neuro-psychiatrists is large yet falls far short of the number needing adjustment. Then, naught is left but hospitals and sanatoria. Consequently, with an absence of adequate facilities for caring for psychoneurotics outside of hospitals, their treatment in hospitals is inevitable pending the provision of the necessary extra-hospital system. Especially is this true for ex-service men and women.

Thom and Singer² have emphasized that to hospitalize a psychoneurotic is to confirm his morbid notions and to fix his faulty social adjustments. While this is true in no small measure, it must not be forgotten that protracted idleness and pampering by relatives at home, and by well-meaning friends and social agencies, is no less potent a factor in the fixation of a maladjustment syndrome. Oftentimes it is probably a greater factor than is hospitalization with intelligent care and treatment.

Sanger Brown II,³ also decries emphatically the hospitalization of psychoneurotics and emphasizes the importance of an out-patient clinic system. Yet the hospitalization of psychoneurotics goes merrily on and the suggestions and advice of such able counsellors wins but slow acceptance.

That out-patient clinics as outlined by Thom and Singer in their report to the U. S. P. H. S. are necessary for proper management of psychoneurotic ex-service men and women, and the psychoneurotics of civil life as well can scarcely be questioned. But one may well ask in how far will such clinics reduce hospitalization of the psychoneurotic, and what light will they throw on the need, if any, for such hospitalization? To be effective, it will be required that out-patient clinics be organized in all of the large cities, many of the secondary cities, and probably not a few of the outlying smaller towns. To man such clinics or dispensaries properly with personnel trained not only to recognize, but also to treat the psychoneuroses

² Thom, Douglas A., and Singer, H. Douglas. Public Health Reports, Vol. 36, October, 1921.

³ Brown, II, Sanger, Jour. A. M. A., Vol. 77, July, 1921.

will be no small problem. "Part time men" will of necessity have to be relied upon almost entirely. Will those "part time men" find time to treat actual full-fledged psychoneuroses? It will probably be the exception, and not the rule, for their time will be taken more justly by the many "near psychoneuroses." In other words, they will be well occupied with those cases that can be most readily aborted or readjusted. There will be a considerable number whose symptom-picture has become so hydra-headed and complex that they cannot take time to unravel them, and it would only be adding to the complexity of that patient's reactions and delaying his chances for readaptation to attempt it. Such cases constitute frank psychoneuroses and should be granted the advantage of admission to a hospital.

It would seem only reasonable that certain hospitals could be especially equipped and manned to treat psychoneuroses in an effective manner. At present many of the hospitals receiving psychoneuroses are also caring for psychoses. And so perforce of routine the psychoneurotic promptly falls into provisions for custodial care. The psychoneurotic does not need custodial care, but intensive review of his case and treatment looking to his early readjustment and prompt discharge from the hospital. By intensive treatment is not meant extensive medication, physio-therapy, and similar measures, but active contact with the patient, frequent explanatory talks with his physician, chance for unburdening himself, and a rooting out of his complexes. Time on the part of the psychiatrist is the greatest need in such treatment, and hence, hospitals caring for psychoneurotics cannot expect their psychiatrist to care for the number of patients that physicians do who are on duty in custodial institutions for psychoses. The average number of patients to each physician in the state institutions of the United States in 1918 is given by Furbush^{*} as 243, in 1920 the number was slightly better, 219, yet there are a considerable number of state institutions where a single physician attempts to administer to 300 patients. The indeterminate period for which some psychoses are admitted to institutions is, of course, a reasonable excuse for assigning a larger number to one physician than would otherwise be per-

^{*}Furbush, Edith M. *Comparative Statistics of State Hospitals for Mental Diseases, 1920.* Bureau of Statistics Nat. Com. for Mental Hygiene, 1922.

missible. But all too often that excuse is a scapegoat for the study and care by which even psychoses may profit. This institutional attitude is unfortunately held, apparently, by a considerable number of the neuro-psychiatrists dealing with the problem of the psychoneurotic. It does not seem to be generally recognized that a single psychiatrist can adequately treat only a comparatively small number of psychoneurotics. If the term of hospitalization for psychoneurotics is to be reduced to somewhat near its proper period—say three weeks to three months, depending on the nature of the case—then, the hospitals caring for psychoneurotics must be so manned with properly trained psychiatrists that the proportion of patients to physicians approaches more nearly that of a general hospital and not that of a state institution for the insane. With the exchange that a three weeks' to a three months' period of hospitalization implies, a psychiatrist will do well if he adequately examines, studies and treats a continuous quota of 20 to 25 psychoneurotic patients. If this premise be granted, then it would seem clear that such psychoneurotics as should have hospitalization would best be treated in hospitals especially equipped and manned to care for them.

The need of out-patient clinics is no less imperative for, with few exceptions, no psychoneurotics should find their way to the hospitals except through out-patient clinics. On the other hand, out-patient clinics should not delay the sending of a case to a hospital as soon as it is reasonably clear he cannot be readjusted by the clinic. The greatest value of the out-patient clinic lies in the care and psychic support it can give to the psychoneurotic after he has been discharged from the hospital. Understanding reassurances and minor adjustments are then indispensable to the complete rehabilitation of the patient. It is believed that thorough examination and study with intensive treatment and corrective measures in hospitals is clearly indicated in the management of frank and fully developed psychoneuroses. For such cases intelligent hospital care, supplemented by out-patient care, after discharge from hospital, is judged to be far better than long-drawn-out and questionable adjustment in the out-patient clinic alone. In many cases, especially ex-service men, the desire for federal compensation, rehabilitation training, or a permanent disability insurance rating, has a far more confirming and fixing influence on their symptom-syndrome than does intelligent hospital management. Furthermore, hospitalization would

permit furnishing to the out-patient clinic a complete record of the patient's examination and treatment while in the hospital. Such record would be extremely valuable as an aid in administering the follow-up adjustment. Hence, hospitalization for psychoneurotics need not be condemned, but needs to be raised to a more efficient plane.

ORGANIC DISEASE IN THE PSYCHONEUROSSES.

All patients directed to report to the U. S. P. H. S. Hospital at Waukesha, Wis., for admission are so directed because the

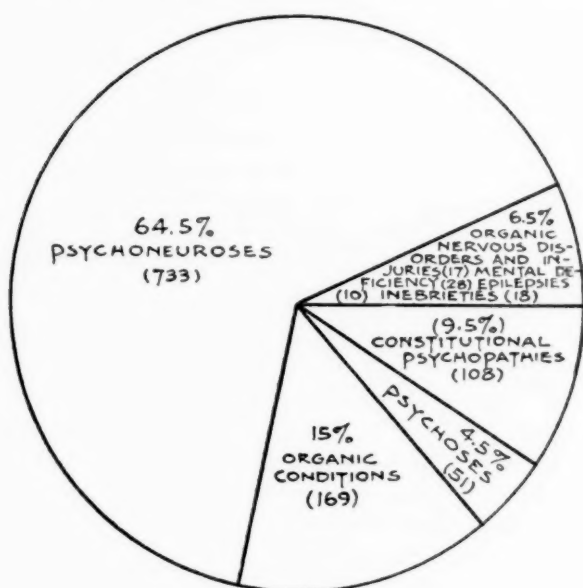


CHART I.

1134 ADMISSIONS TO U. S. P. H. S. HOSPITAL NO. 37 DURING 2 YEARS AND 10 MONTHS.

deduction has been made that their cases fall primarily within the classification of the psychoneuroses. Yet, a glance at Chart I shows that of the 1134 admissions to that hospital in a period of two years and ten months, no less than 401, or approximately 35 per cent, were cases that were more correctly classified in diagnostic groups other than the psychoneuroses.

Of the 1134 admissions, 1083 were first admissions and 51 readmissions; 945 have been discharged. Ninety-eight of the 945 constitute discharges on elopement or continued voluntary absence against medical advice. Seven hundred and thirty-three, or almost 65 per cent, of the 1134 admissions, represent psychoneuroses. Of the remaining 401, 51, or approximately 4.5 per cent, were psychoses. The psychoses were in all instances held under observation until the diagnosis of psychosis was certain, at which time they were in most cases transferred to institutions for the insane. One hundred and eight, or roughly 9.5 per cent, were classified as constitutional psychopathies (psychopathic personalities) of one type or another and included extremes varying from confirmed criminals to meek and emotional inadequates. A group of 73 cases, or about 6.5 per cent, included 28 cases of mental deficiency, 18 of inebriety—principally drug addictions and alcoholism, 17 of organic nervous disease or injury, and 10 of epilepsy. One hundred and sixty-nine, or almost 15 per cent, were cases of organic disease—such psychoneurotic manifestations as occurred were negligible or quite secondary. That a considerable number of these cases of organic disease were obscure furnishes an excuse not only for their admission to the Waukesha hospital instead of a general hospital, but also emphasizes the fact that often very detailed examinations, frequent reviews of the case, and even protracted observation are necessary for the necessary and proper exclusion of other diagnostic probabilities. The organic cases in question included pulmonary tuberculosis, valvular cardiac disease, myocardial affections, exophthalmic goiter, neurosyphilis, diabetes mellitus, encephalitis epidemica, cerebellar tumor, multiple sclerosis, cerebral tumor, and others. All the organic conditions mentioned were verified by the lapse of time and observation, repeated examination by proper specialists, appropriate laboratory determinations, and in a few cases by autopsy.

This epitome of hospitalization is made with full knowledge of at least the major difficulties encountered in the hospitalization of ex-service men and women. It is fully realized that not the least of the ex-service man's prerogatives is his unwritten right to hospitalization and the present national status, with the "spirit of the times" is no mean support in stimulating him to aggression:

A grouping of the 733 psychoneurotic cases is seen in Chart II. Three hundred and sixty-seven, or 50 per cent, were classed as hysteria; 205, or 28 per cent, as neurasthenia, 36, or 5 per cent, as psychasthenia; 55, or 7.5 per cent, an anxiety neurosis; 48, or 6.5 per cent, as traumatic neurosis; 14, or 2 per cent, as hypochondriasis, and 8, or 1 per cent, as gastric neurosis. It is probably

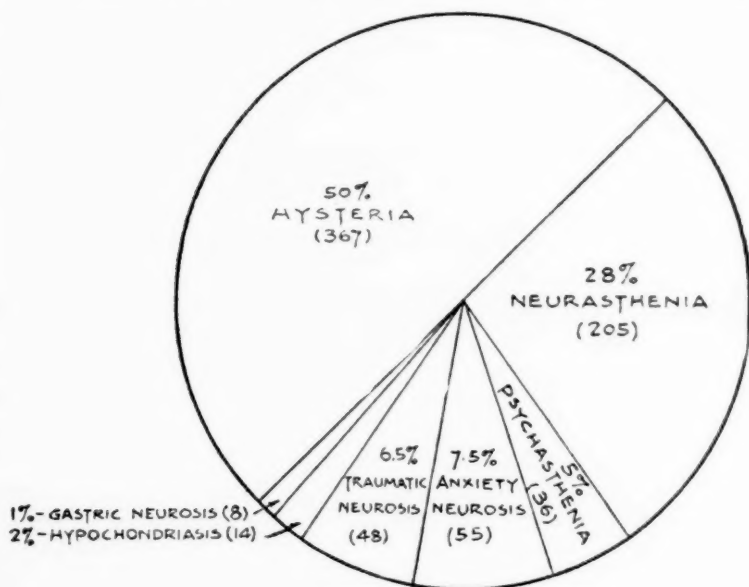


CHART II.
THE PSYCHONEUROSES—733.

needless to remark that of necessity the nomenclature used by the U. S. P. H. S. was followed in making these groupings.

In Chart III is shown the type and the percentage of psychoneuroses found to have organic conditions associated with them. In 1921 Covey⁸ made a similar study and recorded some noteworthy findings. In the present larger series, however, the percentage of somatic concomitants is even higher than his study indicated. It will be noted from the chart that 63 per cent of the

⁸ Covey, Clyde B. New York Med. Journal, November, 1921.

neurasthenias and one-half of the hysterias were accompanied by organic conditions. Within the meaning of organic conditions are included all pathological somatic findings that were judged to have a definite bearing on the patient's physical well-being. They vary from carious teeth or flat feet to advanced pulmonary tuberculosis.



CHART III.

THE PSYCHONEUROSES.

(PERCENTAGE SHOWING ORGANIC CONDITIONS.)

White = With organic conditions.

Shaded = Without organic conditions.

Carious teeth were not considered to have a bearing unless the decay was marked and the number of teeth affected was more than four, but granulomatous, or abscessed teeth, and well-marked pyorrhœa alveolaris were always so regarded. Slight pyorrhœa was disregarded and no teeth were considered abscessed unless shown

to be so by X-ray film or on extraction. All dental examinations and interpretations were made by well qualified dentists. *Pes planus* and other foot conditions were included only if the ascribed symptoms and findings were confirmed on examination by consultant orthopædist. Tonsillar conditions were given recognition only when the pathology was clearly evident and removal was recommended by a throat specialist. Hyperopia, with or without astigmatism, was not considered if the hyperopia was less than +75, or associated astigmatism was of minor degree. Myopia, with or without astigmatism, was not included unless greater than -50, or associated astigmatism was of considerable degree. Naturally some exceptions occurred, such as a hyperopia of +50 with well-marked astigmatism and unmistakable subjective symptoms that were relieved by glasses. The exceptions, however, were few. Nose and ear conditions were recognized only if of well-marked nature and thoroughly verified by examining consultants. In point of repetition it may be stated generally that no organic condition was incorporated in the statistical diagnosis or was considered to have a bearing on the patient's physical well-being unless thoroughly verified by laboratory determinations, electrocardiogram, detailed, and often repeated examinations by consultant specialists. In regard to the neuro-psychiatric diagnoses also, it may be remarked that of the 1134 admissions, 775 cases were thoroughly reviewed by the clinical staff of the hospital assembled in conference, and the diagnosis was thus a consensus of opinion. In the remaining 359, consisting of cases admitted before the establishment of the conference system, desertions and elopements, or special dispositions, the diagnosis was usually a matter of common decision between the clinical director and the doctor in charge of the case. Only in a very few cases was it a question of "a one man diagnosis."

In the case of organic conditions accompanying the psychoneuroses, the organic conditions were variously emphasized by the patients themselves, and, of course, in some cases they were unaware of such associated pathology. This led the clinical staff to regard such organic conditions from two points of view. If a psychoneurotic patient in all his complaints emphasized his organic maladies and actually and persistently wove them into the warp and woof of his symptom-complexes, then those organic conditions were

spoken of as *organic factors* in the psychoneurosis, i. e., they were regarded as actual part and parcel of the patient's entire symptom-syndrome. On the other hand, if a psychoneurotic patient was unaware of the organic pathology concomitant in his case, or at least to all intents and purposes did not make it a part of the psychogenetic symptom-picture characterizing his psychoneurosis, then such organic conditions were spoken of as *co-existing organic conditions*. This subdivision of the organic conditions associated with the psychoneuroses does not appear in Chart III, and is mentioned here only to emphasize that due consideration must be given to the two points of view above expressed. In the former case the psychoneurosis cannot be successfully treated without taking into consideration the organic factors that may be present. In the latter case, success in treatment may be actually frustrated and even much harm done by indiscreetly putting emphasis on conditions of which the patient knows little or nothing. In answer to the question so frequently asked: Doesn't extensive physical examination of psychoneuroses tend to cultivate new morbid notions? it may be remarked that whether or not that be the case depends more on the examiner, his attitude, and mode of examination, and remarks to the patient, and the examining system in vogue at the hospital, than it does on the patient. Thorough examination of a psychoneurosis carried out by personnel properly trained in neuropsychiatry is believed to be no more creative of new morbid notions than is the taking of that patient's blood for the routine blood Wassermann. It is, of course, clear that such examinations must be understandingly made, because over-emphasis of the somatic conditions associated with the psychoneuroses is to be avoided for the reason that all such conditions constitute in the mind of many ex-soldiers ample cause not only for disability, but also for hospitalization, compensation and federal rehabilitation, or a permanent disability insurance rating. Then too, just as there occur unscrupulous individuals in the walks of daily life, so such occur among psychoneurotic patients, and one must not be unmindful of the fact that they will go from one examiner to another, and often one hospital to another, with seemingly the purposeful intent of taking advantage of the variations in medical opinion. On the whole, however, it was found that understanding treatment of even minor organic factors

combined with proper psychotherapy was more productive of result than was disregard of such factors and dependence on psychotherapy alone. Brief review of a case will help to render this deduction more obvious.

CASE I.—H. E. A. The patient is a single man of 26. He was born in Illinois of Norwegian parentage, and is of Lutheran religion. He was formerly a telephone installer, but his bent in engineering led him to college where we find him a student at the time of this study. His family history is free from obvious neuropathic taint. His personal history, prior to his present difficulty, is medically quite negative and without evident causative factors. He enlisted in the army January 26, 1918, and after a very short period of training sailed for England, where he remained in camps until April 30, 1918. Then to France, where he gave supervision to construction work on aviation fields where he was under shell fire and subject to air raids. In August, 1918, he was suddenly thrown on his back from the rear end of a truck. Was confined to quarters three days by pains and spastic lumbar muscles. Shortly after his feet began to give him difficulty. Also, about this time, he learned that his mess sergeant had syphilis. This aroused some aversion for meals over which the sergeant had supervision. Later, while at St. Nazaire, was sent to arrest three drunken soldiers. He suffered a "beating up," lost three teeth in the encounter, and was held in the camp infirmary six days for general repairs. But to all intents and purposes he weathered his army service knocks reasonably well, returned to the states, and was discharged at Camp Grant, Ill., April 7, 1919. Went home to Manitowoc, Wis., where he gradually adjusted to work in a freight office. Entered college in Waukesha, Wis., in September, 1919. Being a youth of small means but lofty ambitions forced him to "work his way." Window washing, beating rugs, and scrubbing brought him to the writer's home early in 1920. Acquaintance with "the doctor" prompted him to ask if difficulty in sleeping, lack of concentration, "funny tired feeling," and apprehensions as to his success or failure might not prove a serious handicap. Taking careful inventory of the situation, the psychiatrist—noting here a stalwart young Norwegian of five feet ten inches, and about 150 pounds, reporting himself "up in" all his studies, taking part in athletics, organizing master of the Boy Scouts, and "working his way"—concluded here is a psychoneurosis that needs out-patient clinic adjustment. Such was personally attempted without admitting him to that department of the hospital or even having him report there for examination. Explanatory psychotherapeutic counsel was given occasionally and the lad was encouraged to continue his college work. He managed to get along apparently much better. Then he was given less and less attention. When seen again in February, 1921, he had some dental difficulties adjusted, and had been awarded disability on *pēs planus* with symptoms. He was still psychoneurotic. Was admitted to the hospital's out-patient department March 15, 1921, and treated there until June. Camped out all summer in Wisconsin. On return to college further

out-patient treatment was given from November 5, 1921, until January 27, 1922, when he was admitted to the hospital as an in-patient. Painsstaking examination, study, and review in conference grouped him as an anxiety neurosis with co-existing organic conditions: namely, nephritis and incipient pulmonary tuberculosis, together with certain minor organic factors. He responded only slowly to treatment because his complexes with their physiopathic tendrils relating to the army service instances mentioned were detected in piece-meal manner and eradicated with difficulty. On June 3 he was discharged from the hospital weighing 14 pounds more than when he entered, his urine free from casts and albumin, his tuberculosis arrested, and his mental attitude one of adjustment and new hope.

This case illustrates well the insufficiency of out-patient treatment alone, the need of hospitalization for a fully developed psychoneurosis, the importance of thorough examination and the necessary recognition of accompanying organic conditions, and lastly strongly implies the need of the out-patient clinic system to maintain and stabilize the adjustment gained through his hospitalization. The case is not a singular one for, although the out-patient service of the Waukesha hospital is not extensive, several other cases could readily be cited.

ADAPTATION AND REHABILITATION.

Whatever examinations are made or whatever therapy is accorded, the goal in the treatment of the psychoneuroses is always the same, namely, readjustment to civil life, rehabilitation. Successful rehabilitation then is essentially equivalent to recovery from the psychoneurosis. The proper recording of the successes and the failures in such rehabilitation encounters many difficulties. The many prerogatives granted him by nation, state and community have thus far made of the ex-service man more or less of a human flea. About the time he is partially inducted into his adjustment in one place he is up, gone, and elsewhere.

In Chart IV is shown the course, or at least partial course, of 122 consecutive discharges from the hospital during the last four months of 1920. It will be noted that those rehabilitating immediately after their discharge from the Waukesha hospital and without federal training (Group 5) number only 15, or 12.3 per cent. Those apparently readjusting with the aid of federal training (Group II) number 21, or 17.3 per cent. The cases rehospitalized

after discharge from the Waukesha hospital, often with admission to three or four other hospitals, but happen not to be in any hospital at the time of inquiry (April 1, 1922) constitute the greatest number (Group III), 30, or 24.6 per cent. Those rehospitalized and at present (April 1, 1922) still in some hospital form the next largest group (Group IV), 19, or 15.5 per cent. Those not in hospitals and not readjusting (Group V) number 17, or 13.9 per cent. On



CHART IV.

STUDY OF PATIENTS DISCHARGED.

CLASSIFICATION OF 122 CASES DISCHARGED FROM U. S. P. H. S. HOSPITAL NO. 37, SEPT., OCT., NOV., AND DEC., 1920.

14 cases, or 11.4 per cent, no information was obtained (Group VI). A group of 6 cases, 5 per cent, not classified in other manner include 1 death and 5 psychotic or otherwise seriously ill patients who have been hospitalized continuously since discharged from the Waukesha hospital.

The diagnoses of those rehabilitating without further hospitalization and without federal training (first group) included 9 psychoneuroses, 4 cases primarily organic, 1 of mental deficiency and 1 of

constitutional psychopathic state. Those reported to be readjusting with federal training (second group) included 15 psychoneuroses, 5 cases primarily organic and 1 constitutional psychopathic state. The third group included 16 psychoneuroses, 6 constitutional psychopathic inferiorities, 4 organic cases, 3 mental defectives, 1 psychosis. The fourth group included 10 psychoneuroses, 6 constitutional psychopathic inferiorities, 2 psychoses, 1 organic case (nephritis). The fifth group, 5 constitutional psychopathic inferiorities, 6 psychoneuroses, 2 organic cases, 2 mental defectives, 1 chronic alcoholic and 1 psychosis. The psychoneuroses of this group were of a serious type and in nearly every instance accompanied by organic concomitants. The sixth group included 7 psychoneuroses, 6 constitutional psychopathic inferiorities, 1 organic case, and 1 epileptic.

Want of space will not permit a discussion of the many issues involved in the social readjustment, or rehabilitation of the ex-service man or woman. That they are manifold indeed is commonly admitted. Many factors are of common application and the pension neurosis, and the group invalidism with a racial coloring as mentioned by Benton⁶ still pertain—probably even much more so than in the forepart of 1921. The seriousness of the general trend of some of the reactions of the ex-service men and women to the federal and municipal systems endeavoring to give them aid is reflected in part in the average period of hospitalization, as seen in the admissions to the Waukesha hospital. For the hospital year of 1920 the average period of hospitalization per patient discharged, for all types of cases, was 83 days; in 1921 it was 118 days; and for the past 10 months constituting the partial hospital year of 1922, that period has already reached 164 days. Although it is granted that it is now a little more difficult for a patient to be admitted and readmitted to the various hospitals, it is also vastly more difficult to discharge him.

Many of the generalizations applicable to the situation in question are common knowledge, but it is not generally understood that few if any of the full-fledged psychoneurotics successfully rehabilitate without their problems being made a matter of *individual* study

⁶ Benton, G. H. Jour. A. M. A., July, 1921.

and adjustment. The importance of *individualization* is best represented in a brief case history:

Case II.—J. W. C. This patient is a man of 34, an English-American with college and university training. He is married and his family consists of a wife and three children. His pre-war occupation was that of a brokerage salesman. He enlisted in the National Guard of Colorado June 16, 1916; commissioned captain, August, 1917. Served in four United States camps until July, 1918, when he was sent overseas. In France did duty with motor transport corps in active sectors, but was not wounded or gassed. In November, 1918, had a severe attack of influenza with otitis media as a sequel, remained incapacitated until his return to United States in November, 1919. After further hospital treatment at Camp Kearney, Cal., was discharged from that hospital and the army May 8, 1919. In June, 1919, he entered federal training in citrus fruit culture and rehabilitated in splendid manner until for some unexplained reason he failed for six months to receive his federal board pay. Family economic stress interfered with his further adjustment; he became discouraged and came to Chicago hoping to find a solution, but he went from bad to worse, was hospitalized in Chicago on October 21, 1921, with transfer to the Waukesha hospital, October 28, 1921. After thorough examination and study, the patient was reviewed by the hospital staff on December 20, 1921. He was grouped as an atypical case of anxiety neurosis with bilateral otitis media, with marked deafness as an organic factor.

The patient had in his possession a large folder filled with various official letters that had accrued in regard to his case. Among them were his discharge orders; a letter refusing his application for a commission in the reserve corps of the army because of "being physically disqualified"; letter awarding him compensation at the rate of "\$65 per month from May 9, 1919, to August 8, 1919"; a letter from the Veterans' Bureau stating that pulmonary tuberculosis entered into his disabilities; letter directing him to report to University Farm School, Davis, Calif., for training, and many others.

Instead of improving under hospitalization, he continued to grow worse. His anxieties and agitations, indeed, became serious. His federal compensation was not reaching his family, they having been without that support for months; his wife wrote him long letters stating she could bear the burden no longer, and implied that if it continued she was on the point of taking the lives of her children and herself. (Letters read and were truly pathetic.) Examining physicians because of some functional paresis of right arm and leg informed him that syphilis was suspected. His attitude is apparent from his words "It can't be—it is a damnable insult." Letters by Red Cross to University of California brought back word he had not been there, yet he had in his possession letters proving that he had. Further federal training had been denied. Disability rating was in confusion. Letters to adjutant general's office brought varying answers; "no medical record"; "no hospi-

talization record," etc. In great state of agitation he came to the writer, and stated "For God's sake, can't you do something?"

Personal telegram and letters to family, telephonic communication with the 8th District Veterans' Bureau officers, and psychotherapeutic talks one to three hours daily, after a period of three weeks, brought complete restoration of compensation, authorization for re-establishment of training and wholesome family attitude, and some understanding on patient's part.

Stability of adjustment continued and two months later he was discharged from the hospital with a new lease on life.

Though many details have been omitted, it must be evident that this patient's recovery lay in disentangling to his satisfaction the chaotic condition besetting his home, his means of livelihood, and his ambitions.

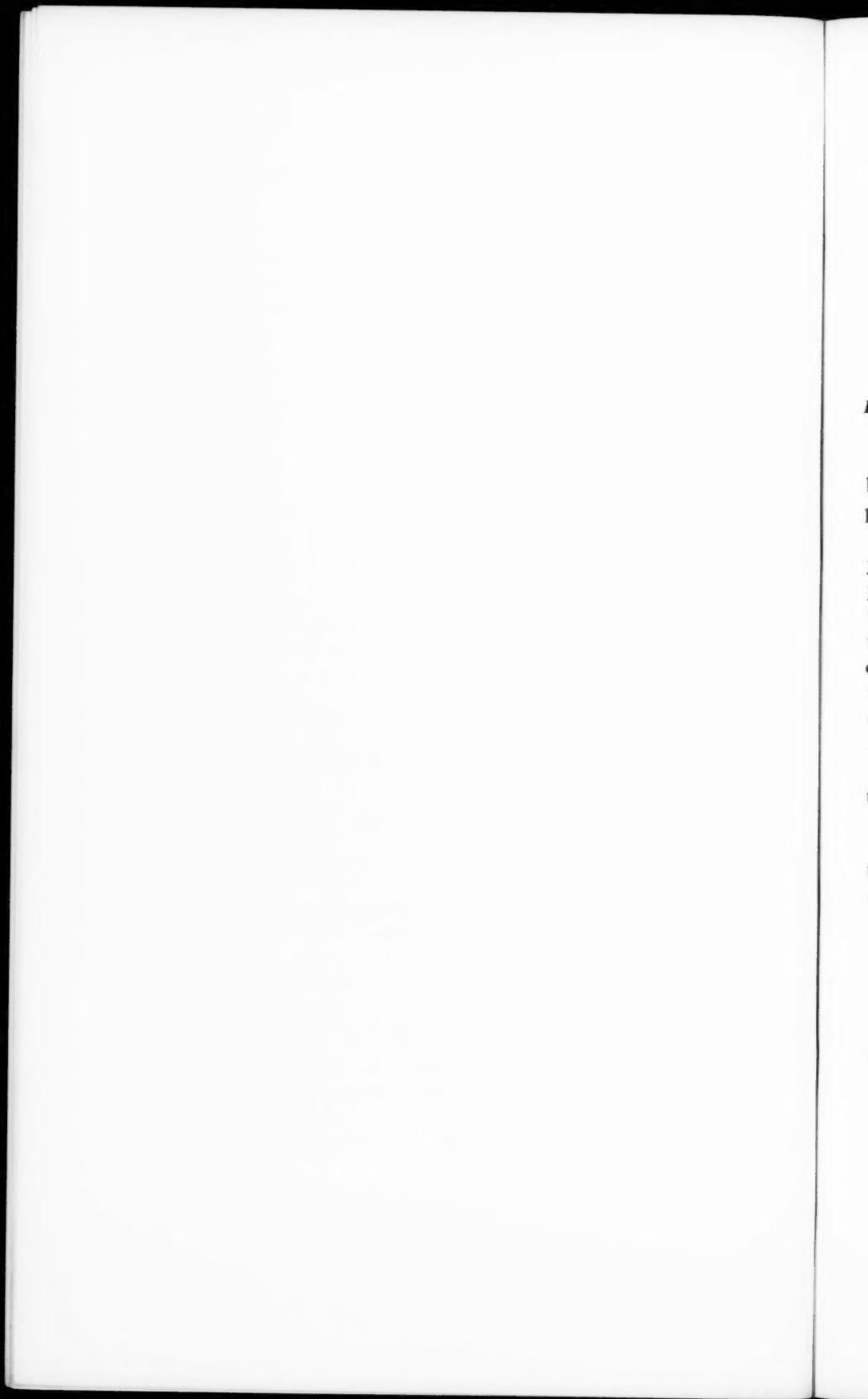
CONCLUSIONS.

Fully developed psychoneuroses can be successfully treated only in hospitals. The hospitals receiving them should be so manned and equipped that intensive treatment can be given and that consequently the period of hospitalization will be as short as possible. Out-patient clinics and dispensaries will reduce the hospitalization of psychoneurotics but will not supplant it. The greatest value of the out-patient clinics for psychoneurotics will be in the aftercare they can furnish that type of case.

Organic factors and co-existing organic conditions occur in the psychoneuroses more frequently than is commonly accepted. Understanding treatment of even minor organic factors with appropriate psychotherapy is usually more productive of results than is disregard of the organic conditions and dependence on psychotherapy alone.

For the complete rehabilitation of the psychoneurotic much individual study and adjustment are necessary. Provision for aftercare in an out-patient clinic is also a prime essential.

Grateful acknowledgment is made to Surgeon Lawrence Kolb, Medical Officer in Charge, U. S. P. H. S. Hospital No. 37, Waukesha, Wis., for his stimulating interest in the subject matter here presented; to Dr. Lloyd H. Ziegler for his careful review of the manuscript; and, to many of the hospital personnel for their constant endeavor to gather and to record the data given.



THE NEUROPSYCHIATRIC SERVICE OF THE DEPARTMENT OF SOLDIERS' CIVIL RE-ESTABLISHMENT, CANADA.*

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Certain figures, which at the first view appear rather startling, have become available in the matter of the incidence of neuropsychiatric disabilities among service and ex-service men.

Since the beginning of the war eight years have passed; four years of war, and an equal post-bellum period. During the four years of war there were invalided from the Canadian Expeditionary Force roughly six thousand (6000) men on account of neuropsychiatric disabilities existing alone or in some cases associated with other conditions. Accordingly, up to November, 1918, the number of cases so invalided represented about 1.5 per cent of the Canadian Expeditionary Force strength at the date of the Armistice.

Since that date not quite four years have elapsed; and during this four-year post-bellum period another six thousand (6000) cases have come to light.¹ Up to the present, therefore, there have emerged from the Canadian Expeditionary Force since the beginning of the war approximately 12,000 neuropsychiatric invalids or about 3 per cent of the surviving strength of the army.

It gives us pause to realize that four years of peace have brought to light as many cases as were invalided during the four years of

* Read at the seventy-eighth annual meeting of The American Psychiatric Association, Quebec, Canada, June 6, 7, 8, 9, 1922. Since the presentation of the paper, in abstract, certain additional data have been incorporated, bringing it down to the close of 1922, without, however, altering the main facts and conclusions.

¹ By no means all of these 6000 cases have been found eligible for treatment or even to require it, or to be pensionable. The figures simply represent the number of claimants for treatment, training or pension on account of nervous or mental conditions alleged to be due to service.

war; but there are certain circumstances which help us to understand the situation.

In the first place it must be pointed out that these 12,000 cases with neuropsychiatric disabilities represent the total of which official information has become available, including the non-attributable as well as the service-attributable cases, and both those which had been under treatment and those not requiring or not entitled thereto.

From the high percentage of incidence of nervous or mental conditions, particularly in the post-service group, the question naturally arises whether the fact of service has rendered the survivors of the army so much more neuropathic or psychotic than the civil population as the figures imply. That the psychotic tendencies among ex-service men of certain types have been aggravated through service no one will deny; but a circumstance of prime importance is this: In the civil population individuals with minor neuropsychiatric disabilities carry on. This may be the best thing for them to do; and they may have nothing to gain and everything to lose by going sick. Constitutional cases, not a menace to themselves or others or not obviously in need of active treatment, are retained in their families. No one has an object in reporting them. Among ex-service men opposite conditions obtain. The patient himself, or his family takes more notice of the disability and wonders if it is due to service. The possibility of improvement or cure attracts more attention; and incidentally there is the chance for pay and allowances or pension or some of the other benefits provided by the government.

The result of all this is that only a small proportion of the neurotic and psychotic individuals in the civil population—commonly the conspicuous or dangerous cases—become officially known; whereas in all probability extremely few such cases arising among ex-service men escape official recognition. There can also be no question that many conditions which would be regarded as negligible in civil practice appear under variously exaggerated forms when presented before government medical boards. The many features of the whole situation suggest themselves so readily that further comment is unnecessary.

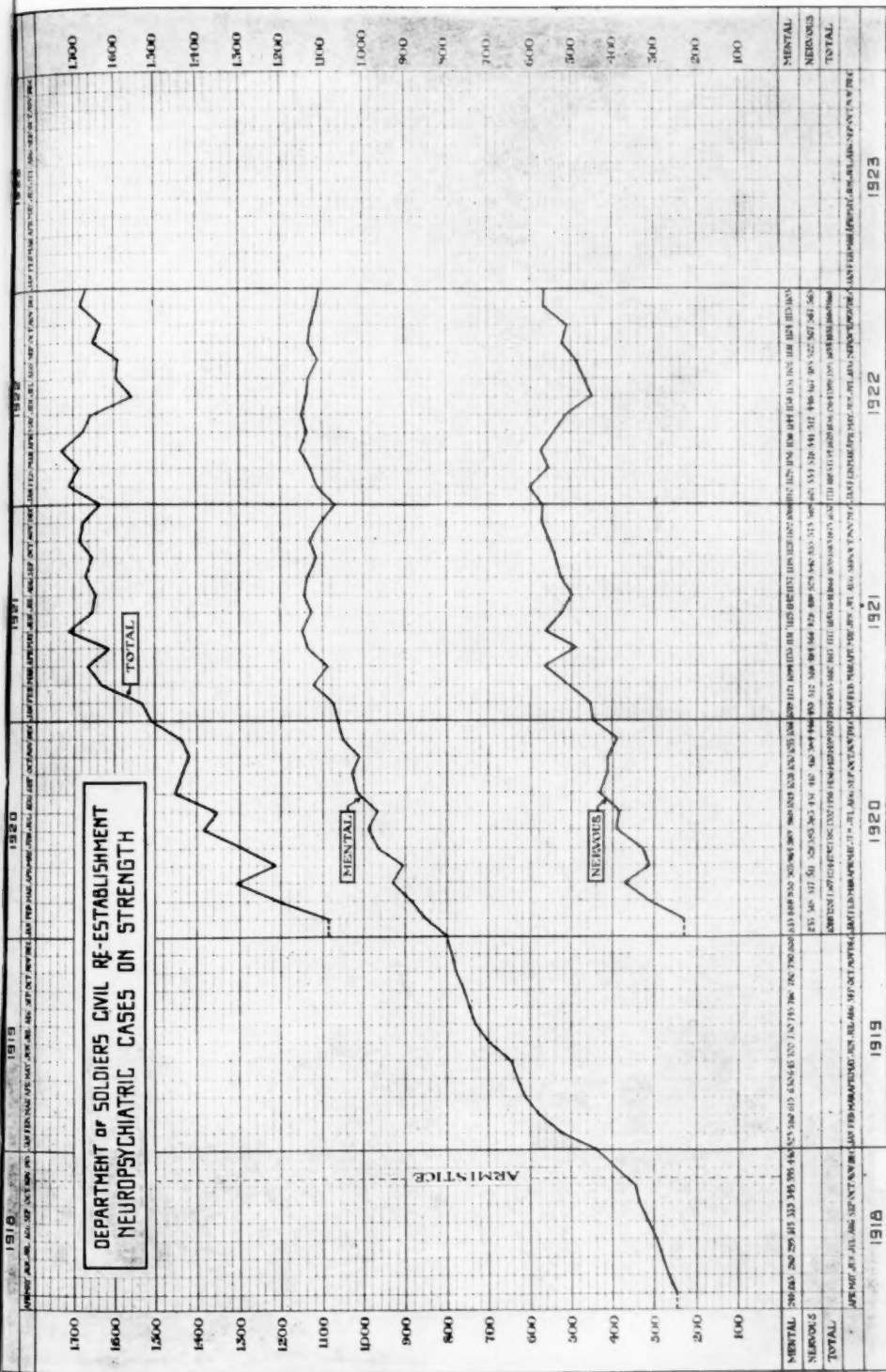


CHART I.

POST-BELLUM INCREASE OF NEUROPSYCHIATRIC CASES.

Let us now turn for a moment to the ratio of the number of neuropsychiatric cases under treatment to the total number of service disabilities on the treatment strength. In Canada the treatment peak, including all types of disability, was reached in January, 1920, when there were slightly more than ten thousand (10,000) cases in hospitals. At this time there were round one thousand (1000) neuropsychiatric cases under treatment. Thus it will be seen that the 10 per cent ratio of neuropsychiatric cases to the total number invalided from overseas during the war still held in the hospitalization total for more than a year after the date of Armistice. By May, 1922, the total hospital strength had fallen to approximately 5000, a reduction of one-half in a little more than two years; whereas at this time the neuropsychiatric strength was considerably over one thousand six hundred (1600). Neuropsychiatric invalids now constituted one third of the total number under treatment.²

Chart 1 shows the rate of increase of nervous and mental invalids among ex-service men under care as government wards since the creation of the Department of Soldiers' Civil Re-Establishment in the spring of 1918. During the first two years the single line represents cases diagnosed as "mental." The so-called "functional" or "neurological" cases were during this period under treatment in military hospitals. These hospitals were closed or turned over to the Department during the winter of 1919-1920; and the "neurological" cases taken over at this time are represented by the lower line in the chart. It will be seen that the high point reached during 1921 has been maintained for practically two years; and there is at the present time (January, 1923) no material evidence of decrease.

It should be pointed out that among patients now in hospitals are many whose disabilities have developed after varying intervals post-discharge; and as the years pass the connection of developing mental conditions with previous military service becomes obviously more questionable. Accordingly, when cases are now brought for-

² By December 31, 1922, neuropsychiatric cases had risen to 38 per cent of the total disabilities under treatment.

YEAR	MONTH	1918	1919	1920	1921	1922	1923
1	J	1	1	1	1	1	1
2	F	1	1	1	1	1	1
3	M	1	1	1	1	1	1
4	A	1	1	1	1	1	1
5	M	1	1	1	1	1	1
6	J	1	1	1	1	1	1
7	J	1	1	1	1	1	1
8	A	1	1	1	1	1	1
9	S	1	1	1	1	1	1
10	O	1	1	1	1	1	1
11	N	1	1	1	1	1	1
12	D	1	1	1	1	1	1

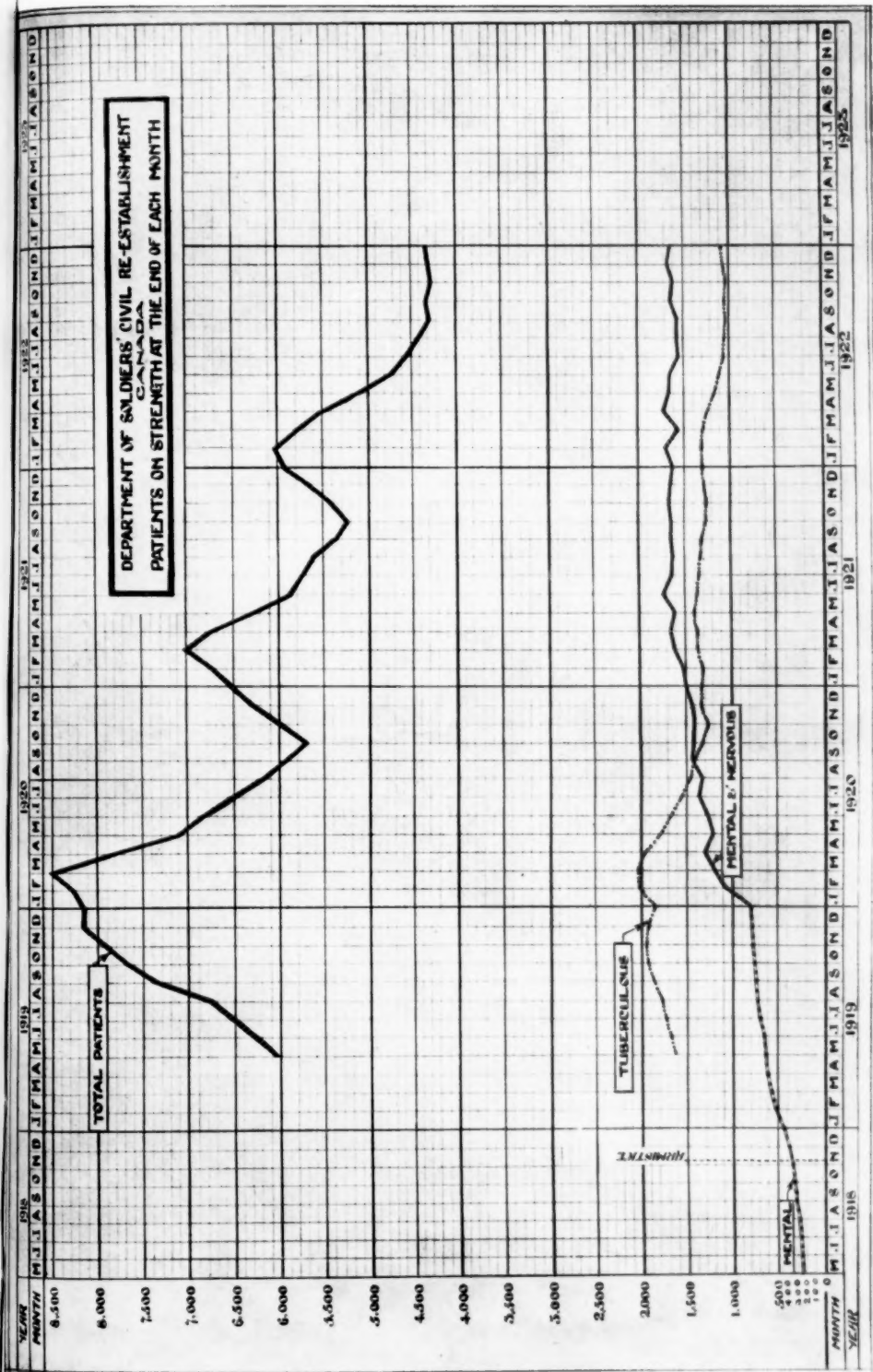


CHART 2.

ward it is necessary to investigate them much more thoroughly than during the earlier days before accepting responsibility for their treatment on behalf of the government. The steady rise in the curve, therefore, has been in spite of increased thoroughness of the checking up process and a much higher proportion of rejections than formerly.

It is perhaps unnecessary to enumerate the reasons for the continued rise, both absolute and relative, of the neuropsychiatric component of the treatment strength. The following factors may, however, be referred to: (a) The recurrent tendency inherent in many neuropsychiatric conditions, a tendency which is enhanced when these conditions are recognized as service disabilities; (b) the insidious post-service development of disabilities, possibly present during service or at the time of discharge but either over-looked or considered negligible, and in which only after the lapse of time has hospitalization come to be required. In these patients as might be anticipated the service factor is of minor etiologic significance as compared with the hereditary-constitutional moment; (c) the eventual necessity for hospitalization in men discharged with service disabilities which did not prevent them from carrying on for a time in civil life, and for which pension was awarded; (d) the appearance of neuropsychiatric conditions requiring treatment among men undergoing vocational training; (e) the incidence during the first twelve months following discharge from the army, or following the completion of treatment or training of nervous or mental disabilities not due to service, but for the treatment of which federal responsibility was assumed; (f) the factor of accumulation, which will be readily understood when it is remembered that the most common mental disabilities among service and ex-service men, excluding the neuroses, are dementia præcox and primary mental defect, conditions which do not of themselves shorten the lives of the individuals they afflict;³ (g) always to be remembered is the circumstance already touched upon that, other things being equal, one hundred ex-service men will, in the course of time, present

³ The combined patient strength of the two Departmental Neuropsychiatric Centers, Ste. Anne's and Westminster hospitals, as of April 30, 1922, was 752. Of this number 485 cases, or 65 per cent, were diagnosed as dementia præcox.

a higher percentage of nervous or mental conditions than one hundred individuals from the community at large because the motives are different.

It is interesting to note that nearly half of the neuropsychiatric cases under treatment at the present time (June, 1922) represent post-service admissions, including both first admission and re-admissions.

Attention has generally been focussed upon the startlingly high frequency of the psychoneuroses during the late war, these conditions always constituting half or more than half of all the neuropsychiatric disabilities. It might have been assumed that during the post-bellum period the number of neuroses demanding attention would have rapidly fallen both absolutely and relatively. The following table showing roughly the make-up of the neuropsychiatric treatment strength as at the date of armistice, and again in April, 1922, is, therefore, at first view somewhat surprising:

Of all neuropsychiatric cases invalidated up to:

	Armistice Per cent	April, 1922 Per cent
"Neuroses" constituted	59	56
Psychoses	27	29
Epilepsy	9	7
Other conditions	5	8
	<hr/> 100	<hr/> 100

It is thus apparent that almost as high a proportion of individuals with nervous or functional conditions have come forward as new cases since the cessation of hostilities as was observed during the period of the war. The number of these men who have received treatment has of course been proportionately smaller than during the period of hostilities. As a matter of fact, however, about 40 per cent of the actual treatment strength of neuropsychiatric cases as of April 30, 1922, was made up of cases of the functional type.*

But these figures do not tell the whole story. The fact, so often reported, that individuals of psychopathic make-up or deficient

*On January 31, 1923, 33 per cent of the neuropsychiatric cases under treatment were still found to be in the functional or "nervous" group.

mentality were especially prone to manifest signs of neurosis, particularly of the hysterical variety, under stress of active service, finds confirmation and double emphasis in relation to post-service conditions of the same sort. The amazing number of cases labelled neurosis which have developed post-discharge may be accounted for in considerable part by a careful study of the underlying mental make-up and capacity of these individuals.

THE QUESTION OF CLASSIFICATION.

Reference was made above to the fact that prior to 1920 there had existed, in so far as treatment was concerned, an arbitrary division of neuropsychiatric invalids into two groups, the so-called "mental" group being treated by the Department of Soldiers' Civil Re-Establishment while the so-called "neurological" group, made up largely of the psychoneuroses, was treated by the Department of Militia and Defense. This artificial division was based upon several fallacies, pre-eminent among which were the assumptions that hysteria is not a mental disease and that the diagnosis of "hysteria" having once been made, there is no more to be said, the hysteria existing, as it were, in pure culture. On these assumptions the hysterical symptoms as such were to be treated and promptly cured; but the persistent repeating tendency of such symptoms in many cases was not adequately accounted for. Such a view-point overlooks the mental ground-work of all obdurate and recurrent cases.

The result was that the neuropsychiatric group was split up into two sub-divisions as if these sub-divisions represented totally different conditions. Cases falling under the one sub-division were brought into alliance with general treatment cases while those in the other were assumed to belong in the walled city set apart for those disqualified to associate with their fellows. It naturally followed that relatives, and many times patients themselves, regardless of the actual clinical type of their disability, were insistent that they should be classified under the "neurological" heading to avoid the stigma of being regarded as "mental" cases. It also followed that the term "neurasthenia" was, and has been to this day, terribly over-worked, although to be sure it is a common enough tendency in general practice to dub off-hand as neurasthenic

any neuropsychiatric patient who is not obviously a raving lunatic or a terminal dement. It is needless to add that the notion of a stigma attached to cases classified as mental was considerably emphasized by this artificial sub-division.

The policy of the Department has been to bring together again the severed members of the neuropsychiatric group. This does not mean that treatment and all other items in connection with the handling and disposal of cases have not been determined in accordance with the type of the individual case. It has been found, however, that in an institution with ample accommodation to permit segregation to be carried as far as the types of the patient population required, all kinds of cases from mild neurasthenics to severe and chronic psychoses can be satisfactorily dealt with. In such circumstances the functional or nervous patient has nothing to lose, the "mental" patient has everything to gain. Moreover the lines of demarkation are of such an indefinite nature, and so many patients present varying components of "nervous" and "mental" symptoms, that it is eminently desirable that transfers either way between "nervous" and "mental" wards may be made with the utmost facility whenever required.

In fact, from the administrative point of view, the clinical diagnosis, as such, is of little importance. The paramount question is: How severe is the disabling condition, and to what degree has the responsibility of the patient been impaired thereby?

It was further desired to bring the reunited neuropsychiatric group into close alignment with the general treatment service. To accomplish this an experiment was tried at Ste. Anne's Hospital in Quebec, which had been the Dominion center for all varieties of war disabilities with the single exception of "mental" cases. The experiment consisted in opening wards for all types of neuropsychiatric disability, severe and chronic as well as mild, in addition to the wards for the general treatment cases and the so-called functional or neurological groups. From various quarters there was considerable criticism of this move, and not a little objection to bringing "insane" patients into such close proximity to other war invalids. There were provided, to be sure, closed wards as well as open; but there were those who objected to having admitted

to a general treatment center irresponsible or commitment cases. The gratuitous suggestion was also made that the quarters for such patients, if they must be admitted, should be specially fenced off in order that there might be no mingling outside the walls of the hospital. All these objections and suggestions were resisted; and this is the third year that the institution has been conducted as a general treatment and neuropsychiatric center and all of the fears that were originally expressed as to feasibility of carrying on in this way have proven to be groundless.

VOLUNTARY STATUS.

It has been the steady aim of the Department to make the status of the mental patient squarely a medical issue, to minimize to the utmost the legal aspect and to do away as far as possible with all formalities and red tape in the disposal of his case. In this connection I should like to refer particularly to committal procedure. Voluntary admissions to Provincial Hospitals are now sanctioned by law in five of the nine Provinces of Canada; and yet voluntary admissions are still the exception rather than the rule.

The Department set out to see what could be done to properly increase the number of voluntary patients in its own hospitals. It should be pointed out that in Canada just as in the United States the disposal of the insane is solely a Provincial prerogative; and the several Provincial Statutes differ from each other in this matter on many important points. In order to regularize the activities of the Department, special legislation was secured in the Provinces of Quebec and Ontario, in each of which one of the federal neuropsychiatric centers is situated. According to this legislation the federal government has in these two Provinces full prerogative in dealing with its mental patients similar to the authority vested in the Province itself with respect to its own insane.

During the first year of its operation (1920) Westminster Hospital at London, Ontario, showed 37 per cent of its total admissions to be on the voluntary basis. During 1921, 70 per cent of its admissions were voluntary. During 1922 the voluntary admissions had risen to 82 per cent. At Ste. Anne's Hospital an even more striking result was obtained during the past year;

TABLE 1.
DIAGNOSIS, ALL CASES IN RESIDENCE, MONTHLY, DURING 1922, WESTMINSTER HOSPITAL

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Dementia Praecox.....	257	251	259	267	270	270	268	262	264	267	260	261
Neurosis.....	45	43	40	40	41	38	33	34	33	36	36	38
Primary Mental Defect.....	45	46	43	40	40	33	34	33	29	31	30	29
Epilepsy.....	27	21	22	24	26	30	27	30	31	29	31	31
Cerebro-spinal Syphilis.....	21	22	25	25	26	27	25	23	27	24	22	20
Alcohol.....	1	4	3	3	2	1	1	1	1	0	1	1
Drugs.....	3	3	4	4	5	5	5	5	3	3	4	4
Surgical.....	0	0	0	4	2	3	3	2	3	1	2	2
Others.....	27	28	30	29	22	25	28	28	28	27	33	35
Totals.....	428	417	426	436	434	432	424	420	418	418	419	421

TABLE 2.
DIAGNOSIS, ALL CASES IN RESIDENCE, MONTHLY, DURING 1922, STE. ANNE'S HOSPITAL.

	Jan.	Feb.	Mar.	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Dementia Praecox.....	222	227	219	218	230	230	230	229	225	226	224	217
Neurosis.....	44	38	43	33	39	26	20	25	23	22	21	28
Primary Mental Defect.....	24	27	28	24	22	19	20	19	18	20	19	19
Epilepsy.....	14	14	14	14	13	11	14	13	9	11	11	11
Cerebro-spinal Syphilis.....	17	16	19	18	17	16	14	14	14	14	15	16
Alcohol.....	11	9	11	7	6	6	7	7	9	6	6	5
Drugs.....	1	1	1	2	2	3	3	3	2	2	2	5
Surgical.....	0	0	1	1	1	7	0	0	0	2	2	2
Others.....	30	37	41	43	43	32	36	35	37	38	36	27
Totals.....	363	369	376	360	369	350	344	345	337	341	336	330

94 per cent of all admissions to the neuropsychiatric service during 1922⁵ were on the voluntary basis.

Tables 1 and 2 of group diagnoses of all cases treated in these two centers during the past year indicate clearly enough that voluntary admissions have been found feasible in all types of nervous and mental disability. A very simple procedure has been followed. The voluntary application form is presented or read to the patient and if he understandingly subscribes to it all the needs of the case are met. The form requires him to give five days' notice in writing of his desire to leave the hospital, which allows ample time for commitment if necessary. The case has been extremely rare in which this procedure has been found necessary.

As a matter of fact, except in cases which should obviously be under restraint and in which either the patient or those responsible for him refuse to co-operate in the necessary treatment, and except further in cases with legal complications such as the question of testamentary capacity, ability to enter into contract or undertake other legal actions, there would appear to be no real reason why a mental patient more than any other should be admitted to a hospital under process of commitment. The figures quoted above, which doubtless can safely be raised in the future much closer to 100 per cent, demonstrate what small need there is relatively for committing mental patients in so far as questions of treatment are concerned.

Insistence upon the treatment of neuropsychiatric patients on the voluntary basis has been one of the chief items of Departmental policy; and the demonstration of the feasibility of this method in such a high proportion of cases of all types, including serious mental diseases as well as the milder and neurotic conditions, is believed to be a distinct achievement. If this can be done in the case of ex-service men where, for various obvious reasons the difficulties of procedure are greater than are met with in any other class of patients, not excluding the polite nervous invalids of the gentler sex, it appears to be a foregone conclusion that commitment has been and still is ordinarily resorted to in an unnecessarily large number of mental cases.

⁵ These figures cover the entire calendar year 1922 for both hospitals.

ERGOTHERAPY.

Occupational therapy is another feature which has been particularly emphasized in the federal institutions. At Westminster Hospital, for example, a special medical officer is detailed to look after this work. One of his duties is to make an individual survey of each patient admitted from the standpoint of mental and physical capacity for work, special lines of ability, adaptability to new kinds of work, and special indications determined by constitution, previous training, personal inclination, and psychotic condition. We started with the premise that every patient in whom physical illness was not a contraindication, or in whom mental deterioration had not progressed so far as to render efforts at employment useless or not worth while, should from the beginning be dealt with both from the treatment and the occupational standpoints, or rather that occupation which tended to be regular and constructive should be a part of the treatment from the first.

This intensive attention to occupational therapy throughout the period of treatment as here conceived is only in the experimental stage, but is believed to hold greater possibilities than are perhaps commonly recognized, although systematic occupation in the treatment of nervous and mental cases is of course no new thing and is a quite general procedure in all the better institutions everywhere.

It is considered that the goal will be reached only when every patient capable of any least employment will be suitably employed during the maximum possible portion of the day, just as should be the case with all normal individuals.

What can be accomplished by making a start in this direction is shown by the following figures from Westminster Hospital:

PERCENTAGE OF ALL IN-PATIENTS OCCUPIED, WESTMINSTER HOSPITAL, 1922.

	Per cent.
January	47
February	65
March	68
April	56
May	63
June	62
July	64
August	59
September	67
October	73
November	84
December	79

From the foregoing table it will be seen that a steadily increasing proportion of the patients were regularly employed as the year advanced; and that at the close of the last calendar year the percentage was nearly twice as high as at the beginning, in spite of the fact that during the winter months many out-door activities were necessarily cut off. In this connection again reference should be made to the table of diagnoses, from which it can readily be surmised that a fairly considerable unemployable residue has had to be reckoned with.

TUBERCULOUS NEUROPSYCHIATRIC CASES.

A feature of the work at the federal centers for neuropsychiatric disabilities deserving special notice is the attention paid to the problem of tuberculosis. This point is considered to be of such importance that when the plans were being drawn for Westminster Hospital a detached unit entirely self-contained was designed for tuberculous cases and tuberculosis suspects. This unit with a normal capacity of thirty beds constitutes a miniature tuberculosis sanatorium complete in all respects for the treatment of pulmonary conditions. There was attached to the hospital staff a medical officer trained in chest work who was placed in charge of the tuberculosis pavilion. Particular attention is paid to pulmonary conditions in the routine examination of patients, and all suspected cases are placed under special observation, including X-ray examination. All such as are found to require isolation or continued observation or treatment for chest conditions are transferred to the tuberculosis section.

Westminster Hospital has a capacity for approximately 500 patients. During the past year the in-patient strength has ranged between 400 and 450; and throughout the year the number of patients undergoing examination and treatment in the tuberculosis section has been maintained at from twenty to twenty-five. It is believed that such a unit is an essential part of the organization of any large hospital for mental patients, in view of the relative frequency of incidence of pulmonary disease among such patients, and the great possibility of the condition being overlooked, especially in the early stages, unless particular attention is directed to the question and suitable facilities provided.

GENERAL PROCEDURE IN THE NEUROPSYCHIATRIC SERVICE.

From what has been said and from an inspection of the charts showing the treatment activities of the federal service, it is apparent that new cases, or old ones recurrent, presenting various neuropsychiatric disabilities are continually coming forward, even now, four years after the armistice. It may, therefore, not be out of place to detail briefly the steps that are involved in handling and disposing of these cases.

Medical representatives of the Department are to be found practically in every community throughout the Dominion. Claimants are likely to fall first into their hands. It becomes at once necessary to determine two things: First, what is the actual nature of the disabling condition; and second, in how far may this condition be attributed to military service. If either or both of these points cannot readily be settled, the case is referred to the headquarters of the district concerned, and if necessary may be transferred to one of the special neuropsychiatric centers for further investigation. There are at present five major centers of this sort, namely; at Montreal, Toronto, London, Winnipeg and Vancouver.

Having in mind the fact that the hereditary-constitutional background is the *conditio sine qua non* of almost all nervous and mental diseases, it is obvious that as we become more and more removed in time from the period of the war the question of attributability and, therefore, eligibility becomes increasingly difficult as new cases come forward from month to month. Consequently, in order to safe-guard as completely as possible the interests of individual claimants, and at the same time to prevent unnecessary and unjustified expenditure of public funds, the policy has been adopted of carefully checking up at the departmental headquarters at Ottawa every case taken on the strength in the several districts, and there determining the question of entitlement both to treatment and to compensation.

For practical purposes three groups have been recognized:

- (a) Cases entitled to treatment with pay and allowances including dependents' allowances.
- (b) Cases entitled to treatment with maintenance but without pay and allowances.
- (c) Cases entitled neither to treatment nor to compensation.

The first and third groups are clear enough. The middle group is a somewhat indeterminate one. It is self-evident that the cases here included are not suffering from disabilities which are recognized as due to service. They comprise conditions in which, in spite of that fact, it has been felt that federal responsibility in so far as treatment is concerned might legitimately be assumed. Such cases are covered by the necessary statutory provisions and departmental regulations. For example, it was early decided that an ex-service man incapacitated within one year after discharge from the army on account of a disability of whatsoever kind, and not attributable to service, should be granted free treatment for that disability, including hospitalization if indicated. Among the cases developing within one year there were many nervous and mental invalids whose condition might legitimately be traced to service, and who would, therefore, be entitled to compensation as well as treatment. Other cases, however, in which on careful investigation the service factor proved to be negligible were merely granted treatment. Still other cases have been first reported well outside the one year limit, perhaps two or three or even more years subsequent to their discharge from the forces. In each such case a good deal of work has had to be done. Field workers have been assigned to make detailed examinations into the entire post-service career of the man concerned, and medical and other evidence covering such period has had to be collected. In general when it could be established that late-reported conditions of this kind could definitely be traced back to within one year of discharge from the army, although no other service relationship could be shown, the patient has been accepted as a departmental responsibility, in so far as any necessary treatment with maintenance is concerned.*

Once accepted for treatment on any basis, individual monthly reports are required showing progress under treatment, revisions of diagnosis, manner of disposal, etc. These reports are reviewed

* Subsequent to the date of presentation of this paper a further government regulation was made respecting pensioners who, subsequently to service, developed neuropsychiatric conditions which could not be traced either to service or to the service disability. Such cases are now also entitled to treatment and maintenance.

TABLE 3.
DISCHARGES, DEPARTMENTAL HOSPITALS, 1922.

	Westminster				St. Anne's			
	Recov- ered Improved	Unim- proved	Died	Total	Recov- ered Improved	Unim- proved	Died	Total
January.....	5	3	1	9	9	0	0	9
February.....	6	1	0	7	10	4	1	15
March.....	8	3	1	12	20	2	1	23
April.....	8	0	0	8	16	2	1	19
May.....	9	5	0	14	18	0	2	20
June.....	9	4	2	15	16	6	3	25
July.....	11	3	3	17	6	1	1	8
August.....	9	11	2	22	17	7	0	24
September.....	13	4	3	20	13	6	1	20
October.....	6	4	3	12	10	7	0	17
November.....	8	5	2	15	12	9	0	21
December.....	9	0	1	10	14	6	0	20
Totals.....	101	43	17	161	161	50	10	221

and filed at head office so as to have information constantly available as to the present status and further treatment indications in every case, and suggest any further investigation or other special action which may from time to time be required. In this way an effort is made to prevent over-hospitalization, to review as necessary cases in which eligibility may not have been fully determined, to facilitate transfers and insure the best ultimate disposal possible based upon individual requirements and deserts.

There are many other details of organization and procedure which it would not be profitable to delay over at this time. It may merely be mentioned in passing that special medical boards are required at the termination of hospitalization with specific recommendations as to the possibilities of re-establishment, in order that proper co-operation may then take place between such agencies public or private as may be concerned. If of advantage, varying periods of out-patient treatment may be authorized following release from hospital, with continued compensation if the disability is of service origin, the assessment of pensionability being deferred until the conclusion of out-patient treatment. In the several units a social service organization is maintained which insures such visits or follow-up work as may be necessary in neuropsychiatric cases which have been struck off the strength and are at their homes or shifting for themselves.

Table 3 shows the results of treatment of all cases struck off the strength of the two departmental neuropsychiatric hospitals during 1922. Cases discharged as recovered and improved have been grouped together on account of the uncertain criteria by which in many such cases recovery may be judged. A high proportion of the cases shown in the recovered-improved group may be considered social recoveries.

(Designation)
TOTAL
TU
NE
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Chart p

DEPARTMENT OF SOLDIERS' CIVIL RE-ESTABLISHMENT
COMPARATIVE CHART SHOWING NUMBER OF
TUBERCULOUS AND NERVOUS SYSTEM DISABILITY PENSIONERS WITH
TOTAL NUMBER OF DISABILITY PENSIONERS

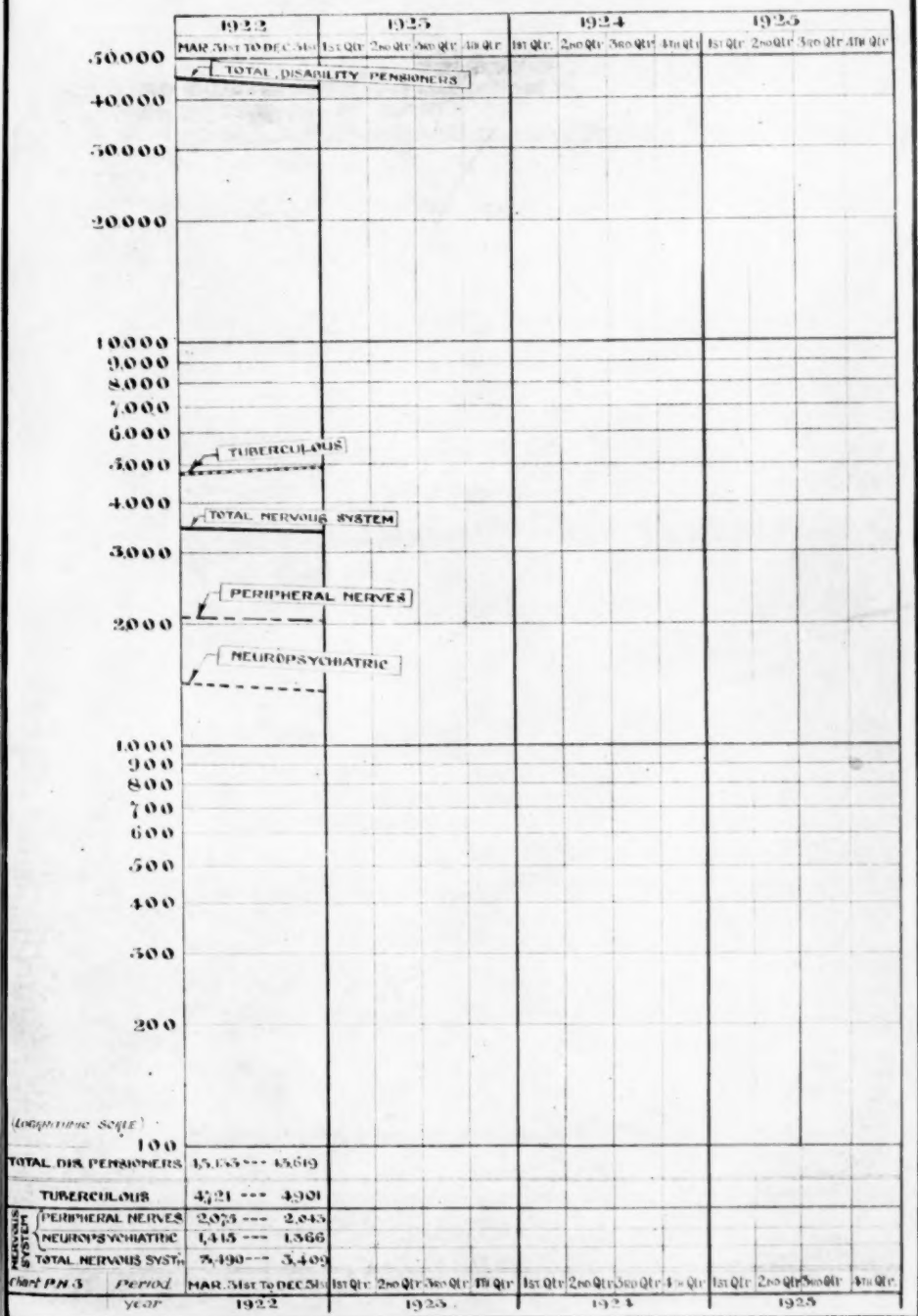
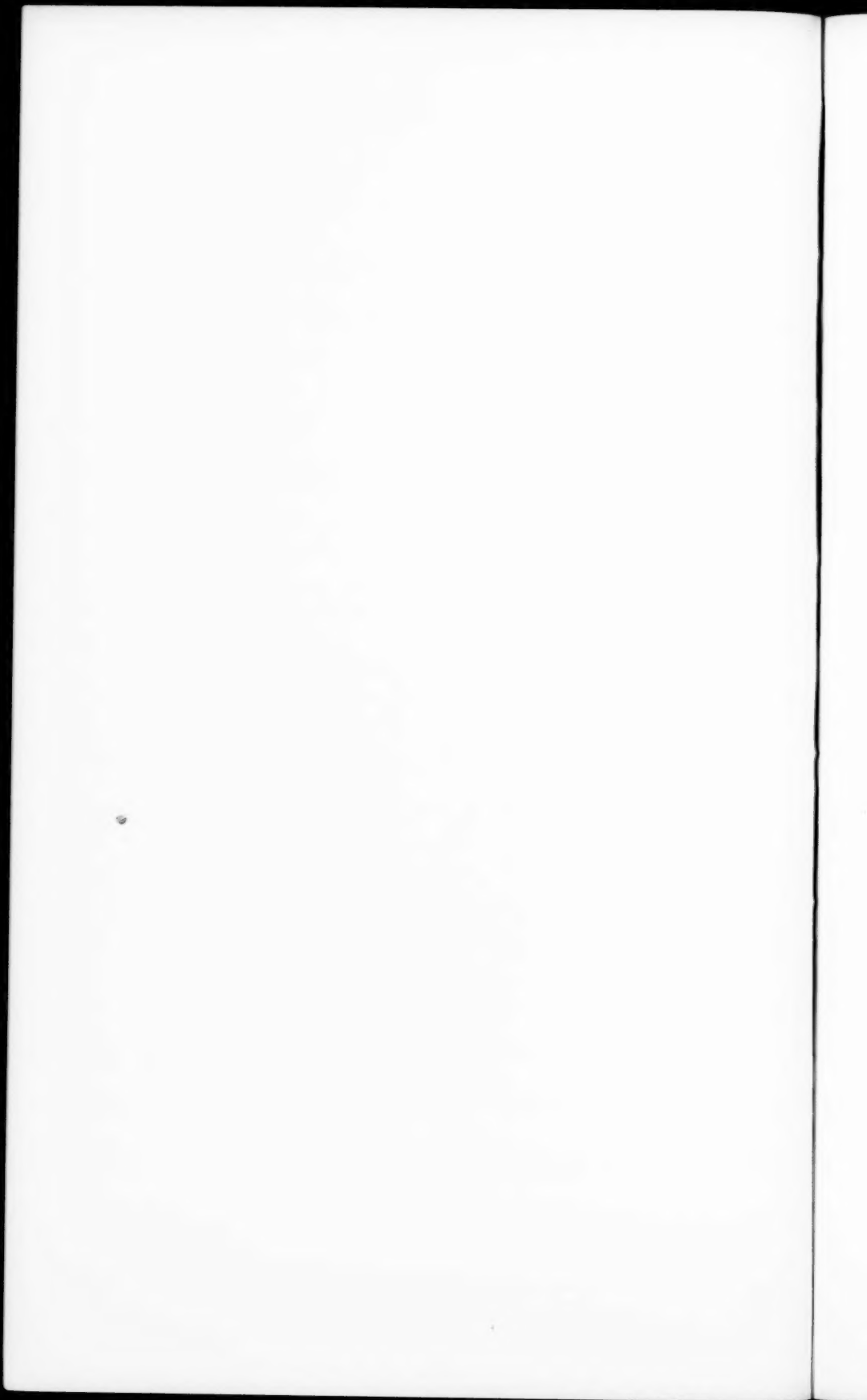


CHART 3.



THE NEURO-PSYCHIATRIC EX-SERVICE MAN AND HIS CIVIL RE-ESTABLISHMENT.*

By DR. GUY O. IRELAND.

The magnitude of the problem of the U. S. Veterans' Bureau in rendering aid to the World War veterans afflicted with neuro-psychiatric disorders is outstandingly one of the greatest ever faced by any government reconstruction agency, both on account of the enormous number of persons affected and by reason of the social, economic, and financial considerations involved in each case.

Early in 1917, when the allied armies were hard pressed by a vicious offensive launched by the Central Powers in their last great effort to break through the lines of defense, the U. S. Government was confronted with the problem of raising a large army as quickly as possible. To accomplish this, a draft was authorized calling for registration of all males between the ages of 20 and 31 for classification and possible induction into the service. As rapidly as this classification could be accomplished and numbers drawn, men were called up for preliminary examinations by local boards. These local boards weeded out those so obviously disabled and physically unfit that they would never be available for military duty, sending the others to camps and cantonments for possible induction into service. At camp, a further weeding out process was accomplished and it was at this juncture that the magnitude of the neuro-psychiatric problem first became evident. It was at once realized that there were many affected with mental and nervous disorders and defects who would require special study. Accordingly, there was created in the Army a branch of the medical service for examining and disposing of such cases, the Neuro-Psychiatric Section, under the direction of the late Colonel Pierce Bailey. The excellent work of this Section is appreciated by all, and it is not necessary to recount its activities in detail.

* Read at the seventy-eighth annual meeting of The American Psychiatric Association, Quebec, Canada, June 6, 7, 8, 9, 1922.

Recognizing the importance of neuro-psychiatric conditions, there was represented in each examining unit a neuro-psychiatric section to which all cases where nervous or mental diseases were suspected were referred. Through these special examinations there were rejected from the draft 48,888 men. This includes those who were rejected by reason of psycho-neuroses, psychoses, and other acquired disorders, as well as a larger group who were congenitally and constitutionally deficient or defective. The vast majority of these rejected cases are not now a problem of the U. S. Veterans' Bureau nor a charge upon the Government, as these men were eliminated by rejection before actual entrance into the service. There were, however, many persons enlisted, enrolled, and actually accepted who developed during service mental disorders and mental diseases which necessitated release from military duty upon a disability charge. Statistics of the Adjutant General's office show that a total of 72,000 men were discharged from the service on Certificates of Disability by reason of these conditions which are classed as neuro-psychiatric disorders.

This figure, however, does not represent the volume of work falling to the neuro-psychiatric service of the U. S. Veterans' Bureau, as the United States by legislation has provided that a neuro-psychiatric disability arising within two years from discharge from service in a claimant who was showing no neuro-psychiatric disability in service or at the time of discharge shall be considered as due to his military experience. There are many men who were able to stand the strain of actual military service, only to break down after they had been discharged and returned to a civilian status, whose breakdown can be more or less directly traced to the strain of military experience. The stress of war, particularly those contemplative fears such as terror and horror as mentioned by Sir Frederick Mott, augmented psycho-neurotic tendencies where such predisposition existed and provoked psycho-genetic disorders in many cases where there was no apparent or discoverable predisposition.

Mental disorders have always been responsible for a large number of the disability discharges from the Army and Navy. To quote Dr. Thomas W. Salmon: "In the Army and Navy, mental diseases have for years occupied first or second place in discharges for disability." Realizing that this is true in the regu-

lar military and naval service where ample time is given for a careful examination before acceptance, it is readily understood how much greater would be this tendency in the case of an Army assembled as rapidly as was the Army of the United States in 1917 and 1918, where examinations were necessarily made with great rapidity and where the opportunity for observation and study was decidedly limited because of the volume of work, and the comparatively small force available to perform the service. Mental stress and strain incident to service in the recent war was much greater than that of any previous war or of the regular Army and Navy service in times of peace, and it is not surprising to find that many apparently stable individuals drawn from civilian pursuits into the hell of a modern battlefield suffered a mental breakdown.

There are possibly at the present time between 110,000 and 120,000 claims filed in the U. S. Veterans' Bureau for neuro-psychiatric diseases. These include claims for other disabilities of a major or minor type in which the neuro-psychiatric disability is also present. The extension of the law under the Act of August 9, 1921, to include all claimants developing a neuro-psychiatric disease within two years from the date of discharge from the service within the benefits of the Compensation Act has increased the number of beneficiaries of the U. S. Veterans' Bureau considerably. Of these claimants filing for neuro-psychiatric disabilities, only about one-ninth are actually insane and in need of continuous hospital treatment. The records show that a total of 34,554 men have been treated since discharge for neuro-psychiatric disorders. On March 30, 1922, there were 9,027 men receiving treatment in hospitals as Bureau beneficiaries for a neuro-psychiatric disease. It is estimated that this number will increase until 1927, when it is anticipated that the "peak load" will have been reached, and it is conservatively stated that at that time there will be under treatment in hospitals for neuro-psychiatric disabilities approximately 14,000 men. It must, however, be understood that the insane constitute only a part of the neuro-psychiatric problem of the Bureau and that there is a much larger group of claimants suffering from functional nervous diseases who require occasional treatment, dispensary and out-patient care and follow-up, looking toward restoration to complete social

adaptability and economic adjustment. The importance of the restoration to environmental adaptability is not to be underestimated; it is believed that this is probably the most important function and the most pressing problem of the Neuro-Psychiatric Section of the Bureau in the restoration of these men to economic usefulness.

To insure a more comprehensive understanding of the problems of the Bureau, it is believed that at this time a discussion of the War Risk Insurance Act as it affects the neuro-psychiatric ex-service man is necessary. The U. S. Veterans' Bureau is functioning under two separate and distinct laws: One, the War Risk Insurance Act and its several amendments which is the authority for the payment of compensation and insurance as well as for providing medical service; the other is the Vocational Rehabilitation Act which is the authority for vocational training and industrial rehabilitation. Originally the administration of the provisions of those two Acts was carried out through two separate and distinct Bureaus: the Bureau of War Risk Insurance and the Federal Board of Vocational Education, but under the terms of the Amendatory Act of August 9, 1921, establishing the U. S. Veterans' Bureau, those two Bureaus were consolidated and all benefits are now provided through one Governmental agency responsible directly to the President of the United States. The original War Risk Insurance Act of October 6, 1917, provided compensation for all persons separated from the service under honorable conditions who were disabled to the extent of 10 per cent or more by reason of a disability incurred in or aggravated by military service in the late war, and in addition to this, any person so disabled was entitled to receive medical care, including hospital treatment, prosthetic appliances, and medical supplies. The Act of August 9, 1921, expanded the provisions for treatment and authorized the Director of the Bureau to provide treatment for any person discharged under honorable conditions disabled by reason of a disease or injury incurred in or aggravated by service not resulting from wilful misconduct, regardless of the degree of disability. This work increased the Bureau's medical service, inasmuch as treatment was formerly authorized only where the disability was of 10 per cent degree or more.

In addition to this, the Act of August 9, 1921, contained a provision that "any ex-service man developing neuro-psychiatric disease of 10 per cent degree within two years from the date of separation from active service," would be considered to have acquired such disease in the service. The term "neuro-psychiatric disease" is an expression which has gained some use during and since the war, but itself does not have any definite legal meaning. The Bureau was therefore confronted with the necessity of defining that expression for administrative purposes, and at a conference of neuro-psychiatrists not connected with the Bureau who met in Washington, D. C., February 14 to 17, 1922, the term was defined as follows:

Neuro-psychiatric diseases are all psychoses, psycho-neuroses and epilepsies, except those due to diseases contracted or injuries sustained after discharge from military service, and mental deficiency and constitutional psychopathic states when aggravated by military service.

In instances where there is no record of disability prior to enlistment and no record of disability during service, service connection is determined upon a review of the facts submitted in substantiation of the claim. The Bureau is very liberal in its interpretation of the evidence submitted and will consider any competent evidence, either in the nature of statements from physicians who have rendered treatment, affidavits from employers showing the claimant's industrial history since discharge, and affidavits of friends and associates who are not interested in the prosecution of the claim, who have been in a position to observe the man since discharge from the service, and who have seen evidence of abnormality or disability. Affidavits from relatives and interested parties are also considered as corroborative evidence.

To be entitled to compensation, treatment or benefits under the Act it is necessary that a claimant show that the disability was incurred in or aggravated by service. The present War Risk Insurance Act provides that any man who was accepted for service shall be regarded as "sound" at the time of acceptance, except as to disability made of record by proper authorities at the time of or prior to acceptance, so that the Government cannot deny its responsibility when unquestioned proof is brought to bear showing that the claimant was disabled thereby before enlistment. There are numerous instances where claimant were inducted while on

furlough from hospitals for the insane or while under a status of elopement from such institutions, but if these persons were actually accepted for service and manifested neuro-psychiatric disabilities during service, the right of such claimants to benefits of compensation and medical treatment is not affected by the history of hospitalization before enlistment.

Under the terms of the War Risk Insurance Act compensation is provided for all persons separated from the service under honorable conditions at the following rate:

If and while the disability is rated as total and temporary, the monthly compensation shall be the following amounts:

If the disabled person has neither wife nor child living.....	\$80
If he has a wife but no child living.....	90
If he has a wife and one child living.....	95
If he has no wife but one child living.....	90

(With \$5 for each additional child.)

If he has a mother or father, either or both dependent on him for support, then, in addition to the above amounts, \$10 for each parent so dependent.

If and while the disability is rated as partial and temporary the monthly compensation shall be a percentage of the compensation that would be payable for his total and temporary disability, equal to the degree of the reduction in earning capacity resulting from the disability, but no compensation shall be payable for a reduction in earning capacity rated at less than 10 per centum.

If a disability is permanent and total, compensation is payable at the rate of \$100 per month, and permanent partial ratings are computed upon a basis that would be payable for total permanent disability. Compensation at the rate of \$200 per month is provided for double permanent total disability and if a beneficiary of the Bureau is so helpless as to be in constant need of a nurse or attendant, an additional monthly allowance of \$20 may be made.

Ratings of the Bureau are based, in accordance with the law, upon average impairment of earning capacity resulting from disability by comparison with the average impairment of earning capacity resulting from similar injuries in civil occupations, and not upon the impairment in earning capacity in each individual case. Compensation ratings are industrial and are based upon the general reduction in earning capacity and not upon reduction in "earnings" or upon vocational impairment.

A discussion of the insurance benefits is largely without the scope of this paper. A claimant who is permanently and totally disabled and whose insurance was in force when his total disability began, will receive his insurance benefits according to the terms of the contract. This is entirely independent of compensation, except as compensation and insurance have been linked together in Section 408 of the War Risk Insurance Act. Under the provisions of this Section, where a claimant whose insurance has elapsed dies after lapsation, and where it is found after death that the claimant was at the time of lapsation entitled to compensation sufficient to pay the insurance premium, the insurance is again placed in force by such compensation. Apart from the insurance, the dependent beneficiaries of a deceased claimant are entitled to receive compensation at the rate of \$25 per month, where death occurs as a result of disability or disease incurred in or aggravated by service.

The ratings for the U. S. Veterans' Bureau are made by physicians sitting on rating boards. There is a Rating Board established in each of the 14 District Offices under a Chief Rating Officer. Each of the major branches of medicine and surgery is represented in the Rating Board by a medical referee specializing in the particular branch represented, who receives and rates all cases falling within that specialty. Where a case involves more than one type of disability it is handled by a representative of each specialty concerned.

The actual rate of compensation is computed on the basis of the combined rating of all service connected disabilities. If the claimant is dissatisfied with his rating, he has the right to appeal to the District Board of Appeals and if the decision of the District Board of Appeals is protested, he has the further right to re-appeal to the Director, in which instance the case is referred to the Central Board of Appeals, Washington, D. C., where the rating is final, subject to the approval of the Director.

It has been the custom of this Bureau to rate compensable claimants as totally disabled while they are undergoing hospital treatment, inasmuch as it is believed that a man so disabled as to require continuous care is unable to follow any substantially gainful occupation and the reduction in his earning capacity is therefore of a total degree. This does not, however, apply to claimants who elect to enter a hospital for treatment of a disability

of non-compensable degree, of less than 10 per cent. Such claimant is entitled to treatment but no compensation is payable unless the disability is actually of 10 per cent degree. Likewise, it does not apply to claimants who enter a hospital for domiciliary care, who are not actually in need of hospital treatment but go into a hospital or home for purposes of residence. Hospitalization of this character does not affect the disability rating.

Constitutional psychopathic states and mental deficiency without superadded psychoses, psycho-neuroses or aggravation by service requiring supervision for social adaption, are rated as less than 10 per cent. Where there is an aggravation of the congenital defect or a psychosis engrafted upon the primary deficiency, the rating is proportionate to the rating for psycho-neurosis or psychosis, as the case may be. Psycho-neuroses are rated from less than 10 per cent up to temporary total, depending upon the individual case. Psycho-neuroses when due to service are entitled to treatment without compensation. Cases of psycho-neuroses are not rated upon a permanent basis at any time, inasmuch as they are regarded as functional conditions and are not recognized as being permanent or fixed disabilities. Neuro-circulatory disturbances and endocrinopathies are rated from less than 10 per cent to permanent and total, depending upon the actual disability shown.

Epilepsy is ratable as low as 10 per cent where infrequent seizures occur and where there is no intellectual involvement, temperamental disturbances or deterioration; up to permanent and total where there is marked change in temperament, deterioration or psychosis accompanying, and where seizures are severe or frequent. Practically all cases of traumatic epilepsy following fracture of the skull from wounds in the service are rated as permanent and total. The ratings for epilepsy are predicated upon: First, type, frequency and severity of seizures, and the existence and extent of pre- and post-epileptic disturbances; second, alterations in temperament; third, intellectual involvement, including temperamental deterioration or psychosis. The average rating for epilepsy where a seizure occurs once in four weeks or less, is 35 to 50 per cent; where the seizure occurs more frequently, the average rating is from 50 to 75 per cent, unless the claimant is totally unfit for any work and unsuited for vocational training in the occupations usually available for epileptics,

in which case the rating is Temporary Total. Before a case of epilepsy is rated, it is required that the diagnosis shall be definitely established by observation, and it is usually necessary to place a man in a hospital for a period of study. If a patient has been rated upon a temporary status for a year or more, he is again examined and his entire case is review by a board of three physicians; two neuro-psychiatrists and one doctor familiar with industrial medicine. Upon the findings of this board a permanent rating is made.

Peripheral nerve injuries are rated in proportion to surgical ratings for injuries at the level, and do not in any case exceed surgical ratings for amputation at level of injury. This table corresponds with the rating tables of actuarial insurance companies and industrial commissions.

Organic brain and cord diseases, including tumors and injuries, are ratable from 50 per cent to permanent and total disability.

All psychoses are rated upon the amount of social inadaptation that is produced by the disease and the amount of supervision that is required.

In order that the benefits of compensation and treatment as provided in the War Risk Insurance Act and its several amendments might be made most promptly available to the disabled ex-service man, it was found necessary to divide the territory of the United States into districts, with headquarters established in cities with good terminal railroad facilities. The organization of the Bureau at the present time provides for 14 regional offices under the direction of a district manager; the medical activities of the district office are in charge of a district medical officer who supervises the obtaining of physical examinations, provision for medical treatment, hospital care and supplies, as well as the medical rating of the disability, and the adjustment of compensation award is made at once in the district office, after a rating has been given. In each district and under the general direction of the district manager there are sub-district offices which make the actual contact with the patient.

A clinic or dispensary is operated in connection with each sub-district office where medical officers specializing in the various branches of medicine and surgery are on full or part time duty, as determined by the requirements of that sub-district. All examina-

tions are obtained through the sub-district offices as it is desirable to have claimants report to the sub-district clinic where a complete survey, including any special examinations or laboratory studies, can be made. In this manner proper treatment can be promptly afforded, as the sub-district manager is authorized to institute any treatment that may appear necessary, and if an emergency exists necessitating immediate hospital care, this can be provided by the sub-district manager without reference to the district offices if hospital facilities are available within the limits of that sub-district.

It was formerly the custom of the Bureau to refer a claimant to a designated local examiner for medical examination and report in connection with the application for compensation or treatment. However, this frequently resulted in inconvenience to the claimant inasmuch as the examining physician investigated only such conditions as might be mentioned in the examination request, or as might properly fall within his particular specialty. It was therefore frequently necessary to request the claimant to report for another examination. Examination by local examiners has therefore been largely discontinued, and, so far as possible, all the cases are examined at the dispensary or clinic and examinations are obtained not only for the disability alleged in the application for compensation but for all conditions, whether they are compensable or not, so that upon the basis of this examination all action in connection with the case can be completed.

In cases where proper diagnosis and study cannot be made in the dispensary or by out-patient observation, hospitalization for a period of observation is effected and report then submitted. The providing of hospitalization for observation or for emergency treatment does not affect the claim for compensation as it is not in any way a decision of the Bureau as to compensability. If it is necessary to transfer the claimant for treatment to a hospital outside of the sub-district, authorization is obtained for such transfer from the district manager; if hospital care outside of the district is necessary the transfer is made through the central office in Washington. In special cases where proper treatment cannot be obtained through regular facilities arrangements are made to provide treatment by outside agencies, although for economic reasons it is necessary that the Bureau, as far as possible,

confine itself to regular Government agencies when these facilities are available and adequate.

In a case where a claimant has been placed in a hospital for emergency treatment pending the adjudication of his claim he may be continued in the hospital until the claim has been decided, and if after the evidence has been submitted it is found that the disability in the case is not in any way traceable to service nor to any disease or injury of service origin, further hospitalization cannot be provided by the Bureau. However, if the claimant's condition at the time of the disallowance of the claim is such that he cannot be released from the hospital without seriously jeopardizing his health, he is permitted to remain in the hospital until he can be safely discharged. Steps are taken in every case where hospitalization by the Bureau is terminated by reason of disallowance of the claim, to inform the patient of his right to further treatment or domiciliary care in National Soldiers' Home.

At the time of the signing of the Armistice men were being invalided out of the service and being discharged because of disability at a rapid rate, and the Bureau of War Risk Insurance, the agency at that time charged with the responsibility for the continued treatment of the war disabled, was severely taxed in providing any sort of adequate treatment. This was especially so in cases of soldiers discharged with psychoses who were necessarily, because of their disability, in need of immediate and continuous care. It is worthy of comment that there were not available within the various states, institutions adequately equipped and manned for the proper type of treatment for these cases. In all the states there were state hospitals for the insane, or the so-called insane asylums, the majority of which were equipped to furnish custodial care. There were isolated instances in a few states in which there existed institutions of the modern psychiatric hospital type where full and complete treatment could be afforded these cases.

The U. S. Public Health Service, a regular medical organization of the Government, with a total of less than 200 officers in the regular corps, was called upon and the U. S. Public Health Service Reserve Corps was built up, recruited largely from the Medical Corps of the Army, as physicians were released from military service, for the purpose of organizing medical and hospital relief

for the discharged disabled soldiers. The Marine Hospitals of the U. S. Public Health Service were thrown open to beneficiaries of the Bureau, and U. S. Public Health Service hospitals were created by leasing or purchasing properties suitable for hospital purposes.

The care of the insane was a special problem, and it was impossible to build and equip a sufficient number of institutions to care for patients afflicted with psychoses. Accordingly, arrangements were made with various state institutions to take care of these beneficiaries who had legal residence within the state, the Federal Government bearing the expense of hospitalization by the payment of a per diem rate to the state for each patient in the hospital. This plan was unsatisfactory inasmuch as many state institutions are not modern psychiatric hospitals, and the standard of treatment in state hospitals of this character, while high in some states, is entirely unsatisfactory and very low in many others. In some instances, special buildings have been set aside in state hospitals for Bureau beneficiaries, and satisfactory arrangements for care and treatment in accordance with modern standards have been instituted for these patients, the U. S. Public Health Service detailing a Government officer to make examinations for the Bureau and to act as liaison officer between the hospital administration and the Federal Government. The Foster Clinic at Catonsville, Md., and the Davis Clinic at Marion, Va., are examples, and the treatment through these agencies has been very satisfactory.

At Mendota, Wis., there is being erected the Wisconsin State Memorial Hospital, a modern psychiatric institute for the permanent care of mentally disabled veterans of the late war, who are residents of Wisconsin, and by recent legislation the state of Mississippi authorized the erection of a similar building at the state hospital at Meridian, Miss. St. Elizabeth's Hospital at Washington, D. C., receives a large number of patients direct from the Army and Navy, and U. S. Public Health Service Reserve Officers detailed to the U. S. Veterans' Bureau are assigned to the staff of that hospital under the direction of Dr. W. A. White, Superintendent, to make examinations and perform clinical service incident to the treatment of Bureau beneficiaries.

At the signing of the Armistice a few Army hospitals were turned over to the Public Health Service for use as hospitals for neuro-psychiatric cases. The hospitalization policy at that time provided for every other type of ailment before that of mental disease. Hence it was inevitable that the greatest growth of the "contract" system should be in the neuro-psychiatric field. In many localities where there were no Governmental facilities, the neuro-psychiatric ex-service men were sent to civil institutions without the knowledge of Government authorities. In other instances, the Government officials have sent many men to these institutions because there was no other hospital available. To-day, 48 per cent of all insane ex-service men are in contract hospitals. This is a deplorable condition because in many instances the contract hospitals are mere asylums providing safe custody but absolutely lacking in facilities for treatment of mental disorders. Moreover, the present contract system with the various states is most wasteful of Government funds, as in the majority of states money paid by the Government to a state hospital for care and treatment of Bureau claimants cannot be utilized by that hospital to the benefit of the claimant, but under the laws of the state must be turned directly into the state treasury. In a few instances, notably in the state of Wisconsin, laws have been enacted which permit funds received by the state for the care of Bureau patients to be placed in a revolving fund in the hospital, available for the use of the institution where the Bureau patients are being treated.

It has been the consensus of opinion of the U. S. Veterans' Bureau and of all agencies concerned in national neuro-psychiatric problems, that proper hospital treatment can be provided for claimants of the Bureau only in Government built and Government operated hospitals. The Congress of the United States appropriated under what is known as the First Langley Bill passed March 3, 1921, \$18,600,000 for hospital construction, of which \$7,792,783 has been allotted for the construction or enlargement of neuro-psychiatric hospitals. It is anticipated that an additional \$17,000,000 will be made available for the same purpose as provided in the Second Langley Bill of April 21, 1922, which will soon be at the disposal of the U. S. Veterans' Bureau.

Under the present plan of the Bureau, the establishment of at least one Government hospital for the care of neuro-psychiatric

patients is contemplated in each of the 14 districts. At present, these neuro-psychiatric hospitals are established and operated as follows:

U. S. VETERANS' BUREAU NEURO-PSYCHIATRIC HOSPITALS.

Hosp. No.	Location.
44.....	West Roxbury, Mass.
49.....	Philadelphia, Pa.
42.....	Perryville, Md.
37.....	Waukesha, Wis.
62.....	Augusta, Ga.
57.....	Knoxville, Iowa.
74.....	Gulfport, Miss.
86.....	Ft. McKenzie, Wyo.
81.....	Bronx, N. Y.
78.....	Little Rock, Ark.

In addition to these there is a National Soldiers' Home at Marion, Ind., and the Naval Training Station at Great Lakes, Ill.

Supplementing the beds made available in these hospitals there are set aside in other Government institutions wards for the care of neuro-psychiatric patients and there are at present in Government operated hospitals over 5500 beds available and approximately 4500 beds are being used in civil contract hospitals. With the acquisition of funds now authorized by Congress, it is believed that the U. S. Veterans' Bureau will be able to expand the capacity of these hospitals to approximately 12,000 beds. By a recent order of the President of the United States the hospital facilities of the U. S. Public Health Service dealing with disabled soldiers of the late war, were transferred under the immediate supervision of the Director of the U. S. Veterans' Bureau. The administration of these hospitals now controlled by the Bureau and under the authority of the director, are operated through the medical division of the central office.

There is maintained in each district office an inspection section through which inspections of hospitals, both Governmental and contract, are made at various intervals for the purpose of insuring proper and adequate care and treatment of Bureau beneficiaries. The activities of this section are supervised in a general way by a central inspection service in the central office, Washington, D. C., which standardizes the inspections and provides for special investigations as the necessity arises.

In the early days of the Bureau the problem arising in the cases of psychoneuroses was the ascertaining of the amount of disability for compensation purposes. Accordingly, it was necessary, in the absence of dispensaries or regional clinics, to hospitalize for observation many claimants of this type. However, it was soon realized that the problem of the psycho-neurotic was not so much a matter of hospitalization as it was one of community adjustment, in order that the end result anticipated in compensation would be obtained, which is the return of the individual again into his community as a productive member of society.

The work in out-patient clinics and treatment of this type of case was first instituted at the suggestion of Dr. Thom, of Boston, and Dr. Singer, of Chicago. This type of out-patient clinic was found highly successful and it is now proposed as an integral part of each regional or sub-district dispensary clinic. The first neuro-psychiatric out-patient clinic was established under Dr. Thom in Boston, Mass. These clinics have been established in Washington, D. C., with gratifying results and such clinics are also available in the sub-district offices of Baltimore, New York, and Philadelphia; one has recently been placed in Cincinnati; one has been operated in Cleveland for a very considerable period of time, and some out-patient treatment is given in all sub-district offices.

Out of 154 sub-district offices in the country, over 75 per cent have at least one neuro-psychiatrist on the medical staff available for out-patient treatment as well as for making special examinations in connection with compensation and training cases. The frequent personal contact between the neuro-psychiatrist and the patient suffering with psycho-neurosis is recognized as of prime importance in the treatment of these conditions, and it is believed that the out-patient clinic is the most satisfactory method for providing care for these beneficiaries, minimizing hospitalization in cases of this character, as it carries on the treatment of restoration to industrial and social adaptability at home, in the environment where the patient must necessarily effect his re-adjustment if his civil re-establishment is to be completed.

The discussion of vocational training does not fall properly within the limits of this paper, as arrangements for training and the assignment to courses is conducted by the Rehabilitation Division which performs the functions formerly under the

Federal Board for Vocational Education. The medical aspects of vocational rehabilitation, however, are so intimately connected with the general problems of rehabilitation that a resumé of their medical activities should be made. In a general way, the decision as to whether the individual claimant has a vocational handicap is made by the Medical Division and the eligibility for rehabilitation, *i. e.*, whether the claimant comes under the aspects of the law, is decided by the Claims Division, the necessity for rehabilitation in the individual case being decided by the Rehabilitation Division. If a claimant is found to have a vocational handicap and to be in need of vocational rehabilitation, the feasibility of placement is at the present time decided by contact with the claimant in the sub-district office where a decision as to the rehabilitation necessary in each case is reached.

There are cases where a claimant is discharged from a hospital after a prolonged period of treatment when his condition will not yet permit his entrance upon a regular course in rehabilitation. For this type of case and for the type of case in which feasibility in certain lines is doubtful, training is arranged in resident training centers. There are 11 resident training centers at the present time under the direction of the Bureau, but only four of these are exclusively for the training of neuro-psychiatric cases. These training centers are located at Silver Springs, Md., Bellevue College, Nebr., Port Jefferson, N. Y., and Chick Springs, S. C. At these schools the trainee is given an opportunity to try out in occupations that may attract his interest, and if he is found to display aptitude and to be feasible for training in any particular course, he is given the opportunity to pursue such course by continuing at the training center if his condition is such that he needs continuous supervision, or if he can be trained outside of the center he is allowed to enter upon a regular course outside of the center.

These training centers are not under the direct administration of the Medical Division and are not in charge of medical officers. There is, however, a neuro-psychiatrist responsible to the Medical Division detailed to look after the physical and mental needs of trainees in these centers in cases of breakdown.

In the case of a breakdown of a trainee while in training he is transferred for treatment through the regular relief agencies of

the Bureau to out-patient treatment or a central hospital, which ever may be necessary. The training center is a particularly useful adjunct to the training of neuro-psychiatric cases as it allows a careful study to be made of the potential capacities of the applicant for training, as well as a study of his need for training and feasibility for training, as determined by his physical limitations, and it allows a proper decision to be made by the training officers and medical officers before the claimant is actually entered upon a regular course. It tends to minimize the transfer of trainees from one course to another, by allowing a trial in several vocations at the training center, under observation of educational and medical officers of the Bureau. After a trainee is entered upon a regular course of training the medical follow-up is carried out through the relief section of the district office.

Necessary visits are made by the field nurse from time to time, who makes reports to the medical officer in the sub-district office in all cases where a claimant is absent from training because of illness, showing the cause of absence, and if the trainee is found to be acutely ill or in possible need of treatment, the attention of the proper medical officer is directed to the case and a physician is sent to the trainee's place of residence if he is unable to report to the dispensary or to the doctor's office. A trainee is not removed from his training status because of intercurrent illness, but he is allowed to remain upon his training status and receive an allowance through the Rehabilitation Division during his illness. If, however, it becomes evident that training is interrupted because of a chronic condition which will require his absence from training for a long period or which will render training permanently non-feasible, training is terminated and he again is returned to his compensation status.

Vocational training, as such, is not given in hospitals. Vocational pursuits and studies provided while hospital treatment is being rendered is considered a therapeutic measure. The application of occupational therapy in neuro-psychiatric cases contrasts strongly with the application of similar therapeutics in the case of patients who have organic lesions or who have sustained an anatomical loss. In organic cases one can usually measure accurately the results of therapy in terms of increased flexion, extension, increased strength of muscle, with the acquisition of skill, etc.

Such measuring of results for neuro-psychiatric patients is hardly possible and an estimate of progress in and benefit from occupational therapeutic pursuits is possible in less tangible terms, such as increased adaptability, social and economic, amelioration of pathological symptoms and development of application, self-reliance, and enterprise. It is therefore usually possible in neuro-psychiatric cases who have been under periods of continuous treatment and have had opportunity to receive, in addition to other treatment, occupational therapy to determine rather definitely the feasibility of vocational training. If such a disability constitutes a vocational handicap, a training course approved by a proper medical officer is provided.

The vocational rehabilitation of epileptics is an especially difficult problem, particularly because of the difficulty in placing epileptics in employment after training has been completed. There are many reasons why it is undesirable to have persons afflicted with epilepsy working in an establishment where others come in contact with them, because of the psychological effect produced by an epileptic seizure. In addition to this, the operation of employers' liability laws make the epileptic undesirable for any employment where there is an industrial hazard. There are, however, many vocations and industrial pursuits, particularly those incident to agriculture, horticulture, etc., and such vocations where it is believed certain types of epilepsy can be adequately trained for further usefulness. It is the existing practice of the Bureau when an epileptic is called before a board of examiners to review each case carefully, giving the problem of vocational rehabilitation full consideration. If training is found to be feasible or of questionable feasibility, claimant is given an opportunity to try out in some of the vocations usually adaptable to his type of disease. If it is evident that the application is permanently non-feasible for training because of his disability, this fact is taken into account when the permanent rating of his disability is made.

The training of psycho-neurotics, mental deficient, and claimants with constitutional psychopathic states who have suffered an aggravation of the congenital defect by reason of military service is most satisfactorily accomplished after a period of observation and try-out training in training centers.

The foregoing description of the organization and activities of the U. S. Veterans' Bureau actually applies only to those disabled persons discharged from the United States forces who are now residing within the territorial limits of the United States and Alaska. Sub-offices directly responsible to the central office at Washington, D. C., have been established in Hawaii and the Philippine Islands. Through these offices contact is made with claimants residing in these localities, and examinations are authorized and medical treatment afforded, the actual medical work being done by U. S. Public Health Service officers on duty at these stations.

Where beneficiaries of the U. S. Veterans' Bureau are residing in foreign countries, arrangements for examinations, medical care and treatment are carried out by the Territorial Insular and Foreign Relations Section through the American Consul in the country in which the claimant resides. In addition to this, the U. S. Veterans' Bureau through the Territorial Insular and Foreign Relations Section, by arrangement with the Government involved, provides medical care for disabled veterans of the allied armies who are residing in the United States, receiving reimbursement for the actual out-of-pocket expense incident to such treatment from the Government recognizing such claimant as a beneficiary.

An eminently satisfactory arrangement exists between the United States and Canada in the nature of a reciprocal agreement. Under the terms of this agreement beneficiaries of the Canadian Government living in the United States are treated through the U. S. Veterans' Bureau and in a similar manner beneficiaries of the U. S. Government in Canada are afforded treatment and vocational training through the Department of the Soldiers' Civil Re-establishment of Canada. Under the terms of the existing agreement, which has been extremely satisfactory owing to the intimate contact and the close co-operation between the two Governments represented, approximately 11,000 Canadian beneficiaries have been cared for by the U. S. Veterans' Bureau. A similar agreement is pending between the British Government and the United States. Reports from the Disbursing Office show that the U. S. Veterans' Bureau is paying compensation to approxi-

mately 11,000 beneficiaries not residents of the United States or its territorial and insular possessions.

It is realized that any attempt to picture in a paper the neuro-psychiatric work and the problems constantly arising in that work can be nothing but a hurried sketch; a kaleidoscopic view, as it were.

There are many great problems yet remaining to be solved, to place the neuro-psychiatric work of the U. S. Veterans' Bureau on the high standard of complete and full delivery of the benefits of legislation to the claimants of this Bureau, as desired by an appreciative nation. However, it is felt that very great progress has been made toward the achievement of that end.

The fulfillment of service to the neuro-psychiatric veterans of the late war has been delayed in a measure, because the United States had not, previous to the war, met its problems of neuro-psychiatric disease and disfunction in the manner it had met some of its other diseases, notably that of pulmonary tuberculosis. Accordingly, neuro-psychiatry was handicapped and had to start from the post, as it were, while treatment and care of other diseases were placed in more fortunate running positions.

Great indebtedness must be acknowledged to the U. S. Public Health Service which has co-operated with the U. S. Veterans' Bureau in every way in the attempt to solve the hospital problems and other problems of treatment. Indebtedness, too, must be acknowledged to our Canadian brethren, who, because of their earlier entrance into the war, were many steps ahead of the United States in this work; their experience and their advice along many lines has been of inestimable value.

In closing, it is desired to tender a grateful acknowledgment to Colonel Charles R. Forbes, Director of the U. S. Veterans' Bureau, for the hearty co-operation he has evinced in placing the facilities of the Bureau at my disposal, and to acknowledge, also, the assistance rendered by Colonel Robert U. Patterson, Assistant Director of the Medical Division, in many of the details of the work presented.

It is desired to direct your attention to the exhibit in the ante-room for further data regarding the work and activities of the Neuro-Psychiatric Section of the U. S. Veterans' Bureau.

DISCUSSION.

DR. MCGHIE.—Mr. President, in connection with hospital treatment of ex-service men, certain problems not met with in civil hospitals present themselves. For instance, some three years ago, if a medical superintendent of a hospital treating ex-soldiers attempted to prescribe as part of the patient's treatment, any menial task about the hospital, he would soon find trained upon him the guns, not only of the various veterans organizations but of the press as well.

This, of course, is a great handicap in providing occupational therapy for our men, but it has been overcome to a great extent during the past two years by the Voluntary Admission System, instituted by Dr. Farrar, our director, whereby a man signs his willingness to do any work assigned to him as part of his treatment.

We had transferred to us at Westminster, in opening the hospital, some 20 occupational therapists from the militia department.

We were at first handicapped because the men did not like to do the particular kind of work assigned to them. Of late, however, we have been able to standardize the work and classify the patients according to their occupational fitness. I remember one case of a man who had been a miner being placed by the doctor who is in charge of the occupational therapy work at some task which did not appeal to him and when I asked him how he was occupied he said that he could not do that work, that it did not appeal to him, "give me a pick and shovel and I will soon earn my parole." We took him at his word and he started to work on a coal pile. He managed to get a number of other men interested and all this work is now being done by patients who prefer work outside. We have no farm at the institution, but we have this year 30 acres under cultivation and a truck garden with some 50 patients employed in it. This, we feel, helps to provide a variety of occupation for these men which is congenial to them. We have one medical officer who makes a survey of each case admitted, to determine his occupation and fitness and we feel that it has been a great help in treating these cases.

DR. RYAN.—Mr. President, I was going to say a word on these most interesting papers. From 1916 until 1917 I had charge of the mental cases at the Ontario Military Hospital, at Orpington, England. It is most interesting now to look back and trace the development of our view point towards war psychoses. At first the condition was considered as due entirely to the strain of war. After a while the point of view began to change, and it was held by such men, for example, as Mott, that the causation factor was the commotional activity of the cerebro spinal tissues, due to air pressure from the explosion of shells. It was not considered then to be in any way relative to psychical life, the same view was held at that period by the French school. Later on came a well-defined attitude towards all war psychoses, in that it was held to be not a psychic but a

moral defect or malingering, and sad to say many cases were court martialled, with the inevitable findings and the inevitable termination.

Fortunately at last men who had real knowledge of the situation, men who were practical psychiatrists, made their voice heard. Then the cases were treated entirely on their merits. Looking over the period now, and studying it carefully even in the light of experience collected overseas and since the armistice, I have come to the conclusion that the cause of the psycho-neurosis is not difficult to determine. In the vast majority of cases the foundation of the psychoses was already present before enlistment. On close examination you will find heredity, congenital or acquired defect in nearly all cases of so-called war psychoses. Indeed I am not sure that the disease would not have developed even if the patient had not taken part in military affairs; unquestionably, however, the strain of war precipitated the disease in a great many cases. One will have to exempt one very large class the psychopaths, which one can attribute nearly altogether to war conditions, but in cases of the mental defects the defective condition existed already, and I am not quite sure but that the dementia præcox, the epileptics and the manic would have developed their psychoses had they never donned the uniform.

The lesson to my mind to be taught by this great war tragedy in so far as we are concerned is, not how to take care of the psychotics produced by the war, but how to prevent them. The lesson should be that every man entering any branch of the army or navy should receive careful study by both the neurologist and the psychiatrist. We are paying the price now for our neglect, our failure to exact a proper mental examination of our soldiers.

DR. OSTHEIMER.—I very much regret that my former chief, Dr. Salmon, has not found it possible to be here, because I feel sure that you would have heard from him the very broadest review and discussion of this question, particularly in regard to the war-time neuroses and the post-war experiences we have had in the United States. However, I feel that perhaps a few details as to just exactly what is going on in one of 14 districts, namely, District No. 3, comprising Delaware and Pennsylvania.

Following Dr. Douglas Thom's lead, the Philadelphia neuro-psychiatric out-patient clinic was established early in 1921, with Dr. Geo. Wilson, Dr. F. H. Leavitt, Dr. N. W. Winkleman and Dr. C. A. Patten doing the bulk of the clinical work. During the past eight (8) months there have been 2557 ex-service men, supposed to be suffering from neuro-psychiatric disabilities, examined and treated in this clinic. Of this number 1580, or 61½ per cent, have been diagnosed as suffering from the various forms of psychoneurosis; of these 1580 only 35, or 2½ per cent, have been hospitalized for treatment; the balance being treated as out-patients and largely by psychotherapy. It has been found that a large percentage of these out-patients have been gradually returned to their normal positions in life, largely on account of the fact that each one has been given sufficient individual attention by a competent and trained neuro-psychiatrist. The

balance of the 2557 cases, or 38½ per cent, is made up of the following disabilities:

	Per cent
Constitutional psychopathic inferiors.....	6 1/10
Peripheral nerve lesions.....	5½
Psychoses	4 1/10
Organic nervous diseases	4 1/10
Epileptics	3 1/10
Endocrine gland disturbances.....	3 1/10
Neuro-syphilis	2
Mental defectives	1½

(In view of the fact that only the most important diagnosis was taken in making up this table, it would seem that the proportion of mental defectives, as indicated by this figure of 1½ per cent is somewhat misleading. In compiling the figures, I noted that there really was a much larger percentage of men having an under-lying basis of feeble-mindedness on which is engrafted, however, the various other disabilities. It is to be understood, therefore, that these figures represent the main disability at the time of the examination.)

In addition to the above diagnosed cases, 3 per cent are in hospitals for observation and study with diagnosis pending, and 7 per cent referred for examination, were found not to be suffering from any form of neuro-psychiatric disability. By a study of these figures, it will easily be seen that far and away the great bulk of the ex-service men at the present time suffering from neuro-psychiatric disabilities have some form of psychoneurosis. The present forms of psychoneuroses are really very different from the psychoneuroses seen during the war or immediately after the armistice. They might be termed the various forms of reconstruction psychoneuroses with "compensation neurosis" and economic factors playing a large rôle. In my opinion, while it is unquestionably true, that a number of soldiers possessing a high-grade quality of nervous system, broke down as the result of the prolonged and excessive stress and strain of modern warfare, and this is particularly true in the English and French armies, it is, nevertheless, true that all of these men have long since recovered, and that the psychoneuroses that we have to deal with to-day occur practically invariably in those men who had congenitally psychopathic or neuropathic defects, or in whom disease processes had definitely affected their nervous systems. If it becomes true, as I hope, that a large majority of the present day psychoneurotic ex-service men makes a stable social adjustment, after proper treatment, the types of ex-service men that are going to continue to be with us indefinitely are: (1) The mental defectives; (2) the constitutional psychopathic inferiors; (3) the psychotics; and (4) the epileptics.

It would seem that adequate preparation for the proper care and treatment of the psychoses has finally been made. (It might be said *en passant* that Pennsylvania has been very well off in this regard since the beginning,

having had the advantage of using the Pennsylvania Hospital's department for Mental and Nervous Diseases, as well as the Friends Hospital for study, observation and treatment of border-line and acute recoverable mental cases, as well as the state hospitals at Warren, Allentown and Norristown for such psychotic men who were considered not to be of the acute recoverable type.)

To my mind there can be no real civil adjustment as far as the great mass of mental defectives, the epileptics and the constitutional psychopathic inferiors are concerned, and I am inclined to believe that for years to come the question of the proper disposition of these three classes of cases will be a burning one, unless some such scheme as I would like herewith to propose is adopted, by which federal control of these types of men is made possible by legislation.

1. Heretofore legislation to effect legal commitment to a custodial institution has been considered to be a matter for each state to decide upon, but I imagine it might be found to be constitutional to enact federal laws that might apply only to beneficiaries of the U. S. Veterans' Bureau—a branch of the federal government. With such legislation in force, I think there should be three classes of treatment training centers established, to one of which each of the above mentioned classes, the epileptics, the mental defectives and the constitutional psychopathic inferiors, should be committed. For the epileptics this center should be in the form of a farm colony, to which all epileptics, except those with very mild, very infrequent or only nocturnal attacks—and those with psychosis, should be sent. These colonies should consist, not only of the beneficiaries, their doctors and teachers, but should be made to resemble the ordinary community in which an individual has been accustomed to live. A man's wife and children and perhaps other members of the family, should live in the colony. All forms of recreations and amusements to be provided, particularly well organized physical exercise in the way of athletic games. The ex-service man should here be treated at the same time that he is being trained for some form of outdoor occupation or perhaps some sort of manufacturing vocation free from danger to himself, and always under supervision.

2. The intention would be to so rehabilitate the man so that he could, within the confines of the colony and under supervision, pursue his farming or manufacturing, which could then be continued for the rest of his life. These beneficiaries would then become self-supporting citizens of the community paid for the purposive work that they would be doing in the colony under supervision. It is my opinion that in no other way can or will these men obtain and retain positions of any kind, and at the same time have their lives properly regulated from the standpoint of diet and hygiene. I would propose much the same plan for the feeble-minded and the psychopathic inferiors, with each class in a separate colony. As a large proportion of the potential criminals are included in these three classes of individuals, the probable benefit to society that would result from such a segregation, seems to me, to warrant at least a trial of such a plan.

DR. KILBOURNE.—I think an idea prevails that the insane soldier is different from the insane civilian and must be treated in a different way. Now if the hospitals for the insane all these years have not been capable of treating civilians, they certainly are not capable of treating the insane soldier. We have 120 soldiers for whom every thing is being done. The government certainly has done all it can to supply teachers, but to look ahead, say 50 years; the government is going to build hospitals in the various states for these soldiers. Now if these cases are going to get well, they will be discharged in a short time. What is to become of those who do not recover? If the government is going to take these soldiers off our hands, they will be obliged to maintain these hospitals for many years, unless arrangements are made with the state hospitals to receive them.

DR. FARRAR.—With regard to the question of voluntary commitment it is of course understood that a patient must be eligible for treatment before he can be considered either on the voluntary or commitment basis. Our voluntary cases are accepted simply by the signing of a printed form whereby the patient applies for treatment and agrees to the usual conditions. This form is read to him, and if he can understandingly subscribe to it he is accepted. In deciding whether he can understandingly sign the application it is customary to allow considerable latitude. Voluntary cases are accepted in this way regardless of the clinical diagnosis. If a voluntary patient wishes to leave the institution, it is necessary for him to signify his intention in writing five days in advance. If it is desirable that he remain longer under treatment we have found that usually he can be persuaded to reconsider during that period. It has very rarely been necessary to take action to have a voluntary patient regularly committed later. In each of the two provinces in which the department operates neuropsychiatric hospitals, special legislation has been secured granting to the department full authority and jurisdiction in the handling and disposal of mental cases among ex-service men. If commitment becomes necessary, the change in the patient's status is effected simply by the completion by two medical officers of the department of the necessary forms. Thereafter release can be secured only with the sanction of the hospital authorities or by legal action.

The out-patient feature is one worthy of the highest commendation; it is part of our regular routine. We have out-patient clinics in the several districts where hundreds of patients are examined every week; and of the cases so examined a relatively small number are taken on the strength for in-patient treatment. A certain number are placed in hospitals for short periods of observation, and the policy is to avoid long periods of hospitalization wherever possible. The out-patient branch serves a purpose also in connection with cases on probation, in conjunction with the social service through which follow-up work is carried on.

There is one other special agency authorized by the government which I might mention. When it was found that after the regular resources of treatment, training and pension had been utilized, there still remained cases not satisfactorily re-established, and in which although the service factor might be doubtful, or at least of minor importance, there nevertheless appeared to be a degree of federal responsibility, a special order-in-council was passed authorizing the necessary provision for such cases. Under this order-in-council, special work-shops have been opened where handicapped men receive sheltered employment under conditions to suit their individual needs, and where medical supervision is exercised. There are various other ways in which the benefits of this regulation can be extended to eligible cases to make easier the transition from treatment to civil re-establishment. It is probable that this idea will be further elaborated, and that the experiments which have been going on now for two years in Canada in this direction may lead to developments of a more permanent nature in dealing with many of the difficult constitutional cases from the service.

DR. THOM.—I think there is one thing of tremendous importance and that is the development of personnel. It is much easier to raise a few million dollars for the construction of a hospital than to develop the men to run it. Regarding the out-patient department for the ex-soldiers in Boston, I would say that this is entirely Dr. Sim's idea, not mine. He simply got me to take charge of it. It has worked out very satisfactorily; we are able to treat about 95 per cent of the psychoneurotic cases there without hospitalization and it seems that this plan is the only logical one and should be established throughout the country. We are again confronted with the problem of personnel in the development of our out-patient clinics, not only psychiatrists, but social workers and psychologists. We have already started on a plan for training personnel under Dr. Campbell and myself at the psychopathic hospital in Boston, and under Dr. Singer in Chicago. It must ever be borne in mind that no matter how elaborate and well equipped an institution may be, it will never be more efficient than the personnel which staffs it.

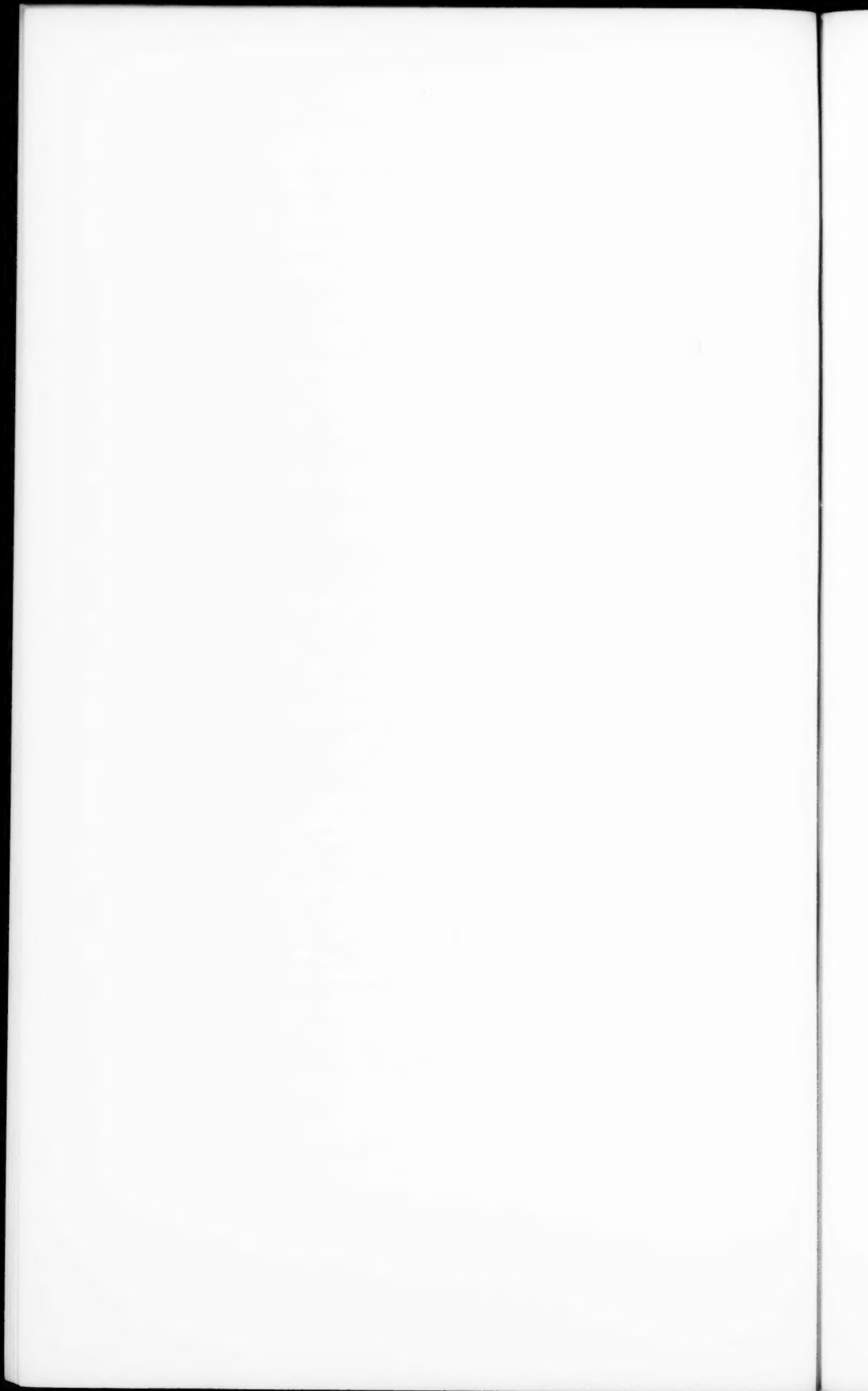
DR. E. K. HOLT.—I would like to say a word in answer to the doctor who spoke of government care. It is the present intention of the government to build institutions for the permanent care of its insane beneficiaries. It is not expected that they will be returned to the state hospitals as charges of the state.

The institution in Wisconsin is not a government hospital but is being built by the state for the treatment of its insane ex-service men regardless as to whether they are beneficiaries of the U. S. Veterans' Bureau or not.

DR. IRELAND.—There is little more to say except in the matter of personnel. Dr. Wm. A. White, of St. Elizabeth's Hospital, Washington,

D. C., has been making efforts to establish an intensive course for the training of men who declared themselves interested in psychiatry and so far as I have been able I have tried to further this idea in order to build up a competent personnel in the United States Veterans' Bureau.

Dr. White is prepared to open his school at any time the Veterans' Bureau can supply the students to attend. In regard to the personnel we wish to limit the age to 40 years and prefer to accept the younger men as recently graduated as possible, and give them the right ideas and training from the beginning.



PSYCHOTIC SYMPTOMS OF EPILEPSY.*

By HARLAN L. PAINE, M. D.,

Superintendent, Grafton State Hospital, N. Grafton, Mass.

For the past few years the Grafton State Hospital has been receiving the epileptics with a psychosis and those considered dangerous to themselves and the community.

Having over 200 of these people I thought it would be interesting, as well as instructive to myself, to study them and see if they were as bad and dangerous as they were depicted in books. A three-year period, ending March 31, 1923, shows that 53 individuals, whose diagnosis is clinically epilepsy with psychosis, had been committed to the institution from the community. Of course, our admission list is greater in this classification due to epileptics being transferred to us from other institutions. For the purpose of this study only cases that, from the symptoms and duration, could be regarded clinically certain to be true cases of epilepsy were considered. Cases with positive Wassermanns have not been included in this study; neither have cases of hystero-epilepsy, psychic-epilepsy or masked epilepsy been included.

ONSET.

The age of onset was the first thing studied, and it was interesting to note that in 27 cases, or practically 50 per cent, the convulsions had their onset when the patient was less than 20 years. In the remaining 26 cases first convulsions appeared after they had reached the age of 20 years. Various writers have found in studies made of non-psychotic epileptic cases that in about 80 per cent the onset of the convulsions was before the patient reached the age of 20.

Since, in our series of psychotic cases, about 50 per cent showed their psychosis after they had reached the age of 20, the

* Read at the seventy-eighth annual meeting of The American Psychiatric Association, Quebec, Canada, June 6, 7, 8, 9, 1922.

query is made, "Does it mean that when epilepsy develops after the age of 20 it is more apt to be accompanied by psychosis than when it develops below the age of 20?"

For the purpose of study the cases whose onset occurred under the age of 20 will now be considered. Of these 27 cases, one-third were females. The reasons given for commitment in five of these 27 cases, whose epilepsy began under 20 years of age, was mental deterioration. Only eight committed definite anti-social acts; two males exposing themselves, two males made definite attempts to commit suicide, one male assaulted his mother and one his sister. These assaults were not of a sexual nature and it is worth noting that very little abnormal sexual activity is shown in any of these cases. Of these anti-social acts practically all were committed while patient was in a state of confusion following convulsions.

Much has been written concerning the influence of alcohol imbibed by the parents. In 14 of these 27 cases definite history of the use of alcohol to excess in the parents was obtained. In 10 cases it was the father, and in four cases both parents used it to excess.

EPILEPSY IN PARENTS.

Of these 27 cases three had a history of epilepsy in father, one of epilepsy in mother and one mother was subject to definite migraine. In one case both the father and paternal grandfather were subject to epilepsy. (This case had epileptic convulsions since early childhood, was accepted in draft, sent across seas and was wounded. His mother, who recently took him from the hospital, stated that she had cared for his father and grandfather and knew all that there was to be known about the care of epileptics.)

DISPOSITION.

In this hospital it is not at all strange to have a patient described as having a "typical epileptic disposition," and most of our textbooks have described the epileptic as possessing marked anomalies of disposition, together with intellectual disorders. Bianchi, the Italian author, states, "The whole life of the epileptic shows hatred. It bursts forth in all its brutality on the slightest provocation; the horrid, the brutal and all that is evil, destruction and

death is present in his mind." De Fursac emphasizes that the following anomalies of disposition are always very marked; irritability and variability of moods, egoism, duplicity, apathy, sudden impulsive reactions, violent at times, terrific fits of anger, lack of consistency between patient's conduct and ideas; more rarely, abnormal stubbornness and tenacity.

I am inclined to agree with Thom who does not place all the epileptics in this violent and impulsive class since 15 of these cases were noted as possessing good dispositions, in other words, they are not especially critical, irritable, quarrelsome or violent in their periods between convulsions. Two other cases are noted to have been subject to depressed periods at times. Only 10 of these 27 cases show symptoms of irritability, violence and such dispositions as most text-books would lead us to believe characterizes the epileptic. Certain it is that 15 of these 27 cases do not possess the "typical epileptic disposition."

HYPER-RELIGIOSITY.

Text-books often speak of the fact that epileptics as a class are hyper-religious, yet in this series only three are noted as being especially hyper-religious; one woman's hyper-religiosity is marked following seizures, one man's is shown by a constant desire to enter the ministry.

EPISODES.

Of these 27 cases, 21 have had no special psychotic episode before convulsions. Six have definite psychotic episodes before their convulsions ranging from extreme irritability to confusion. Of the 21 that suffer from psychotic episodes after the convulsions, six are actively violent. Others show periods of confusion which lasts several days.

Of the 27 cases, 14 are still patients in the hospital, three were discharged as improved after a year's trial visit and later were re-committed, two to this hospital and one elsewhere. Four have been transferred to other hospitals. Two have died during epileptic seizures. Seven have gone out from the hospital improved and, in so far as we know, are still at large.

Twenty-six of the 53 cases are classed as having the onset of epilepsy after they had reached the age of 20. In this series 19, or 73 per cent, are males.

Seven men in this series have definite psychotic episodes before the convulsions, and of these seven, it is interesting to note that one, after he has had his psychotic episode and convulsions, clears immediately and is in good condition following them.

One case has a psychotic episode, consisting of periods of confusion, with irritability and great violence, without convulsions; this case being the only one to approach my conception of psychic epilepsy.

Another case, who had a very excited and violent history outside and was considered to be dangerous at large, continued to be very disturbed following commitment, but as he has continued to deteriorate has become more amenable and at the present time has no psychotic episode neither before nor after convulsions. It is noted that he is practically normal between convulsions. This is not an uncommon feature in dealing with the psychotic epileptics after deterioration begins.

Twelve cases have psychotic episodes following seizures. It is interesting to note that in only six of these 26 cases, whose onset occurred after 20, was their commitment made necessary by definite violent acts, and none of this violence resulted in personal injuries to either the patient or others.

Two of the cases whose commitment was precipitated by a violent act were women. One man attempted to attack his mother, another his wife, threatening to carve the whole family. I do not think it can be too strongly emphasized that none of these 53 cases who were considered sufficiently dangerous to be committed to us committed a homicide or any serious assault before their commitment.

Most of this last group were committed after suffering from epilepsy for years and having been able to get along outside with supervision by the family. Then, during some attack, they became so noisy or so confused and destructive it was necessary to have them committed. Once having been committed to the hospital they have remained there because it is seen they are much better leading the quiet, orderly life of the institution, with

regular hours of work, sleep and meals. On the other hand the physician, knowing the benefit that the patient has derived from his stay in the hospital, and the home to which he would have to go, and that his life in the hospital is much more agreeable and better for the patient allows him to remain. Several of these cases have a record of having been committed twice to the Psychopathic Hospital. The first time their relatives took them out on visit. The second time the relatives have been willing to have patient committed, either because the psychotic episode has increased in severity or because of mental deterioration.

EPILEPSY IN FAMILY.

Seven of the 26 cases show either epilepsy or insanity in their ancestry. Two male patients and one female patient had mothers who suffered from epilepsy. In two male patients the history extended back to the grandparents. One male had a maternal grandfather who suffered from epilepsy, but neither parent.

ALCOHOLIC HISTORY.

In 17 of these 26 cases inquiry as to the excessive use of alcohol in the parents and patients were made. In five female cases, and one male case, it was denied that alcohol has been used by either patient or parents. In nine males it was noted that alcohol had been used to excess usually for a considerable period before the convulsions began. In two women it was noted that it had been used to excess by one of the parents.

DISPOSITIONS.

Sixteen of these cases show that they do not possess any of the peculiarities usually associated with the temperament of the epileptic, eight are noted as being sarcastic, critical, irritable and violent at times, also quarrelsome. Only two of these cases are noted as being hyper-religious.

Sixteen of this group of cases are still patients at this hospital. Six patients have died at this hospital. One female patient was allowed out on visit in the care of her husband and two weeks later killed herself by placing a revolver in her mouth and shooting. (This is rather unusual. Dr. Hodgkins, Superinten-

dent of the Monson State Hospital, which is the hospital maintained for epileptics in Massachusetts, states that in the 24 years he has been associated with the hospital, only two cases have committed suicide—one man and one woman. The suicide was committed in the inter-paroxysmal period, and in both cases no doubt influenced by the belief that all their friends had gone back on them.) Three of this group have been discharged and they are doing well.

CONCLUSIONS.

It is worthy of note that 31, or 58 per cent, of these 53 cases, in their inter-paroxysmal periods, show no anomalies of disposition such as is usually credited to the epileptic. Also, although these patients are classified as dangerous and insane at the time of commitment, none of them committed any definite anti-social act that resulted in any personal injury to themselves or others.

In 12 cases epilepsy was found in the ancestry. Nineteen per cent of the cases committed in the three-year period are out again in the community and doing well.

DISCUSSION.

DR. THOM.—I think there is one point of importance in the study of this paper left out, that is, the duration of the epilepsy. I think perhaps Dr. Paine has something to say about that. It is very important, in a study of personality, to know whether the patient has had his convulsions for a matter of months or a matter of years.

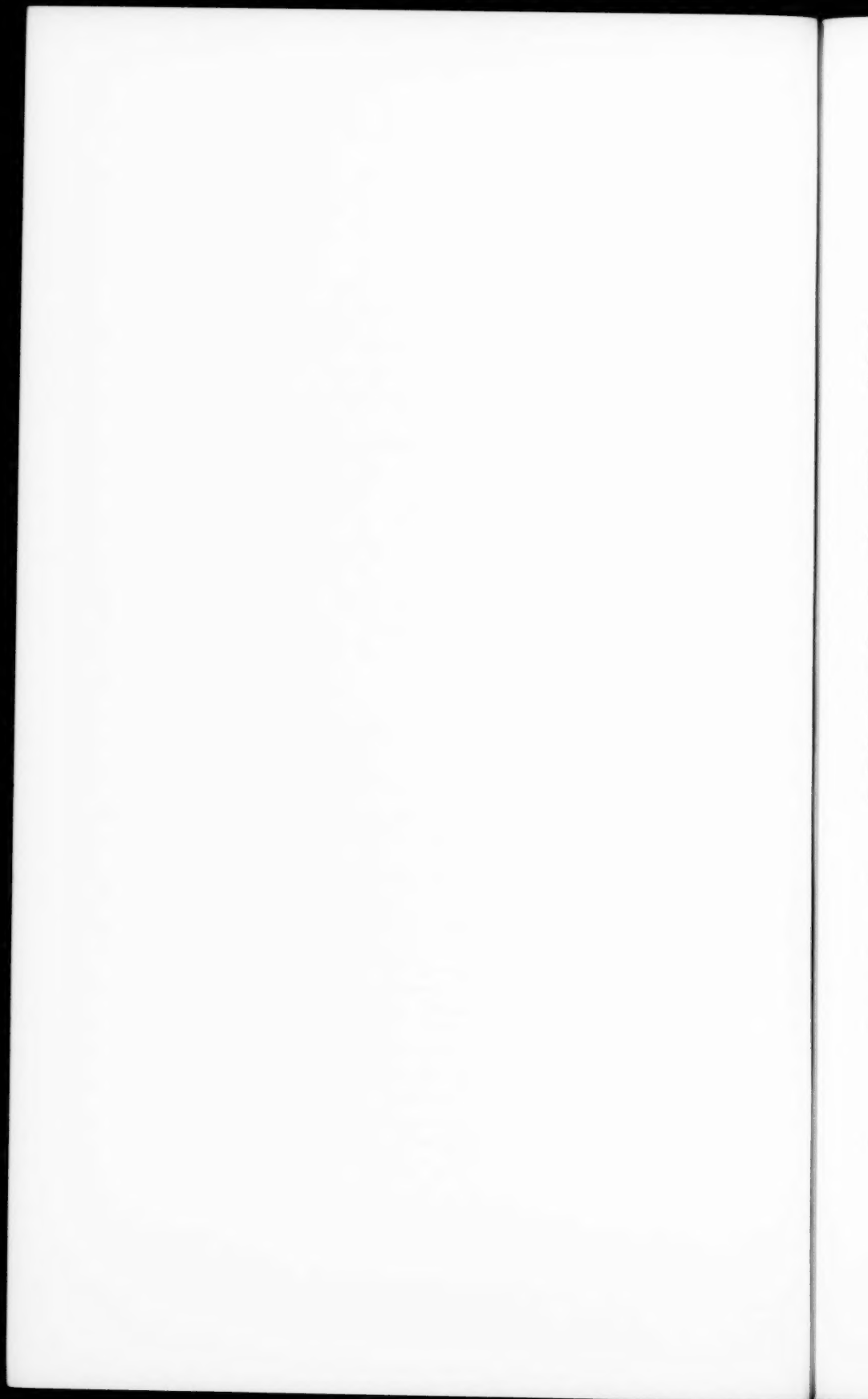
At the Monson State Hospital the average duration of convulsions before the admission of the patient was 13.6 years. In selecting a group of cases where the epilepsy was of short duration and non-psychotic cases, I came to the same conclusion as did Dr. Paine; that is, the epileptic personality had been very much exaggerated. Since that time I have had an opportunity of doing out-patient work dealing with civil cases, and also out-patient work dealing with discharged soldiers. A great majority of the epileptics are out of institutions and living in the community, and it is my opinion that there are an innumerable number of epileptics out in the community having more or less convulsions, who do not show any of the epileptic personality as described in most text books, and by many of the recent writers.

Now as to the question of deterioration. We see a great many epileptics, even where the convulsions began in early life, who show no deterioration after many years and are holding responsible positions. There is another point, I believe, in which we are led to believe that most all epileptics sooner or later do deteriorate. We have had an opportunity to study the sane

epileptics in the out-patient departments, and Dr. Paine has added his contribution of the insane epileptic, and I think it is to me quite conclusive that the epileptic personality and epileptic deterioration has been greatly exaggerated.

DR. DODDS.—I would like to ask if Dr. Paine has had any experience in the use of luminal in epilepsy and what result he had.

DR. PAINE.—I have no figures with me to-night as to the duration of these cases. My impression is that they were of many years duration before we received them. We have used very little bromides lately but have used a great deal of luminal and it has done quite well, many of the patients being free from convulsions as long as they received this drug. It is possible that we have had one serious result. We never give over a grain and one-half of luminal at night.



Notes and Comment.

THE TREATMENT OF PARESIS BY MALARIA.—Psychiatrists have long known that the occurrence of some infectious disease during an attack of mental disorder has at times been followed by the recovery of the patient.*

In 1883, Clouston (*Clinical Lectures on Mental Diseases*, page 190) said: "I believe that some day we shall hit on a mode of producing a local inflammation or manageable septic blood poisoning, by which we shall cut short and cure attacks of acute mania."

The early instances of the application of thyroid treatment to non-myxœdematous forms of mental disorder were based upon the fact that one of the observed effects of thyroid extract as then prepared was a febrile reaction.

Bruce, more than 30 years ago, referring to some observations at the Royal Edinburgh Asylum in the use of the thyroid extract, said that he was led to try the effects of thyroid medication, "after reading the accounts of various cases of myxœdema treated in this manner, where the temperature rose from subnormal to normal and even became feverish with a quickened pulse rate." In short, he hoped to produce in non-selected cases to whom thyroid was administered, something allied to a febrile reaction.

Wagner-Jauregg, of Vienna, in 1890, used tuberculin injections in cases of paresis with the same end in view. Using tuberculin in combination with mercury, he reported some apparently very favorable results.

Some of his cases were reported at the Congress of Medicine, held in Buda-Pest, in 1909, and in 1921 he stated that "some still retain their full capacity for their occupation to-day." One man, who was a captain when treated, had gone through the war, and had advanced to the rank of colonel.

The same observer made experiments with other agents provocative of a febrile reaction, among them typhoid and staphylo-

*Pinel in his *Treatise on Insanity* (English Edition 1806, p. 281) enumerates among various disorders operating to produce a "permanency of recovery" a quartan fever.

coccus vaccines. As early as 1887, he had, among other means of producing an infectious disease and the consequent reaction, suggested malaria. It was not, however, until 1917 that, going back to his suggestion of 1887, he inoculated some paretics from a soldier, ill with malaria of the tertian form.

From these cases he inoculated others. Some of the cases, nine in all, were recent and some advanced.

In six of the nine cases, "not very far advanced" the effect was plainly favorable. Three of them "are actively and efficiently at work four years after the treatment."

In 1919, Wagner-Jauregg again began to treat paresis by inoculation with tertian malaria, and the method has been in use by him continuously since that time.

In a paper in the *Journal of Nervous and Mental Diseases* for May, 1922, Wagner-Jauregg describes his method of treatment. Blood was taken from a patient who had contracted malaria in Vienna, and who had never been treated with quinine. A paretic was inoculated with this blood, with what was demonstrated to be tertian malaria, from this paretic another was inoculated, and the author states that at the time the paper was written, he had to do with the thirty-seventh inoculation and had treated in all more than 200 cases.

The blood is taken from the vein of a paretic during an attack of fever and 1 to 4 c. c. injected under the skin of the back of another paretic. In a few cases no fever followed the first inoculation and frequently a second attempt was successful. A few cases resisted all attempts to produce a fever.

As a rule, the patients were permitted to have eight or nine attacks, in a few cases which tolerated the fever very well, 10 to 12 attacks were permitted. This malaria was treated, after the attacks had continued as long as the observer thought wise, by quinine, and the inoculated malaria showed itself more sensitive to quinine than the malaria contracted in the natural manner.

In addition to the treatment by quinine, the patient received intravenous injections of neo-salvarsan at weekly intervals, for six weeks, beginning with 0.3 gm., then 0.45 gm. and four doses of 0.6 gm. The inoculation from paretic to paretic, the author warns, must be made before the paretic from whom the blood is taken has had any quinine.

Both Wagner-Jauregg and Gerstmann who has followed the same method, are apparently convinced of its great value. The papers of the first observer may be found in addition to the one in the *Journal of Nervous and Mental Diseases*, in *Jahrb. f. Psychiatrie* VII, Bd. 1887. *Wien. klin. Wochenschr.*, 1895, Nr. 9 *Verhandlung der 16 Internat. Kongress.* in Buda-Pest, 1910. *Psychiatr. Neurolog. Wochenschrift*, 1918-19 Nos. 21-22-39-40. *Wein. Med. Wochenschr.*, 1921 Nos. 25 and 27.

Gerstmann's paper is to be found in *Zeitschr. f. d. ges. Neurologie und Psychiatrie*, 1920, LX, 338, 1922; LXXIV, 242.

We trust that observations will be made in this country upon the effects of malarial infection on the progress of paresis. It may be that every large hospital for mental disorders may have to maintain one or more malarial patients as sources of infectious material.

AN HONOR TO DR. CHARLES K. CLARKE.—Dr. Charles K. Clarke, of Toronto, one of the editorial board of this JOURNAL has been selected to give the Maudsley Lecture before the Medico-Psychological Association of Great Britain and Ireland for 1923.

The Maudsley lectureship was established upon a fund left by will by Dr. Henry Maudsley to the Medico-Psychological Association, and very properly named after the donor, though not at his request or direction.

Three lectures have thus far been given since Dr. Maudsley's death, the first in 1920, by Sir J. Crichton Browne, LL. D., D. Sc., M. D., F. R. S., the second in 1921, by Sir F. W. Mott, K. B. E., LL. D., M. D., F. R. C. P., F. R. S., and the third by Sir Maurice Craig, C. B. E., M. A., M. D., F. R. C. P.

Dr. Clarke will find himself in good company: his predecessors in the lectureship are all men of the highest reputation, but we have no fear but that he will most satisfactorily represent Canadian and American psychiatry.

Association and Hospital Notes and News.

THE SEVENTY-NINTH ANNUAL MEETING OF THE AMERICAN PSYCHIATRIC ASSOCIATION.—The seventy-ninth annual meeting of the Association will be held at the Hotel Statler, Detroit, Mich., June 19, 20, 21, 22, 1923.

The Program Committee and the Committee on Arrangements have been very active in the interval since the last meeting in preparing for the sessions to be held in June next in Detroit.

The preliminary program which is presented below promises a wealth and variety of material which should, and doubtless will, make the meeting a notable one. The number of readers who have already signified an intention to present papers is so large that one is tempted to query whether a four-day session will provide time enough for the presentation and discussion of all the papers. We have no information concerning the plans of the Committee on Arrangements beyond an intimation that those in attendance at the meeting will find in Detroit every reasonable effort put forth to secure, in the intervals between the various sessions, an amount of pleasurable relaxation fully comparable with their ability to participate therein.

PRELIMINARY PROGRAM.

TUESDAY, JUNE 19, AFTERNOON.

Organization. Invocation. Addresses of Welcome and Responses. Reports: Committees—Council—Treasurer—Editor of JOURNAL OF PSYCHIATRY. Appointment of Nominating Committee. Memorial Notices. President's Address.

TUESDAY, JUNE 19, AFTERNOON.

The meeting for the afternoon will be divided into two sections to be held simultaneously.

Administrative Program

Papers will be presented discussing problems of hospital personnel, standardization of mental hospitals, out-patient clinics and other administrative features. Papers on problems in modern hospital construction and the field of private neuropsychiatric hospitals will also be presented.

Histological Program

Among the topics to be discussed may be mentioned brain anatomy of the feeble-minded, neuropathology of pellagra, acidophile degeneration in dementia præcox, the brain in post-influenzal psychoses, mental changes noted in pernicious anemia, the significance of the cornu ammonis, and the changes associated with convulsions in general paralysis.

TUESDAY, JUNE 19, EVENING.

No scientific session, as such a session would interfere with the plans of the Committee on Arrangements.

WEDNESDAY, JUNE 20, FORENOON.

Clinical Psychiatry and Therapy

There will be papers on the practical aspects of the treatment of psychoneuroses. Treatment will be outlined by several speakers who may have different techniques. General psychiatric concepts relating to mental hygiene in childhood will also be considered.

WEDNESDAY, JUNE 20, AFTERNOON.

Forensic Psychiatry

At this session medico-legal problems will be discussed from a variety of angles, while a paper will be presented giving the result of a special psychiatric delinquency study.

Brigadier General C. E. Sawyer will present a paper on "What the Government Is Doing for the Nervously and Mentally Afflicted World War Veterans." A paper will also be presented which will give a description of the training course for the personnel of the U. S. Veterans' Bureau Neuropsychiatric Service.

WEDNESDAY, JUNE 20, EVENING.

Annual Address. President's reception.

THURSDAY, JUNE 21, FORENOON.

Clinical Psychiatry

At this session there will be a symposium on the causes and control of sleeplessness; the differences in regard to the exhibition of sedative drugs and other forms of therapy will be discussed. There will also be papers on endocrinology, prognosis and psychological-psychiatric inter-relations.

THURSDAY, JUNE 21, AFTERNOON.

Relationship between Organic Diseases and Mental Disorder

At this session there will be a moving picture demonstration of tics in animals. Among other topics which will be considered may be mentioned puerperal psychoses and X-ray studies in psychoses.

THURSDAY, JUNE 21, EVENING.

Round Table Conferences

It has been thought that the Round Table Conferences may offer more chance for discussion if small groups meet together rather than large groups as formerly. For this reason the following Conferences are suggested:

- | | |
|------------------------------|--------------------------------------|
| (1) Clinical psychiatry | (6) Criminology |
| (2) Administration | (7) Social psychiatry and psychology |
| (3) Histology | (8) Nursing |
| (4) Bio-chemistry | (9) Occupational therapy |
| (5) Veterans Bureau problems | (10) Mental hygiene of industry |

Round Table Conferences will be held on other subjects if requests are made by a group of eight or more members.

FRIDAY, JUNE 22, FORENOON.

Clinical Psychiatry

Papers will be read on heredity in mental diseases, pellagra, general paralysis and the value of statistics in mental disease.

PRELIMINARY LIST OF READERS.

E. S. Abbott	M. B. Heyman	Theophile Raphael
H. M. Adler	S. E. Jelliffe	Mary Raphael
A. M. Barrett	R. A. Keilty	A. L. Jacoby
L. R. Brown	O. F. Kelly	W. W. Harryman
N. H. Brush	W. F. Lorenz	J. W. Rhein
C. M. Campbell	L. G. Lowrey	E. C. Rosenow
R. Mc. Chapman	S. R. Miller	Edward Ryan
C. O. Cheney	F. P. Moersch	C. E. Sawyer
C. B. Dunlap	Abraham Myerson	Boris Sidis
J. M. Forster	F. P. Norbury	H. D. Singer
S. I. Franz	{ A. J. Ostheimer	E. A. Strecker
E. T. Gibson		G. F. Willey
Bernard Glueck	C. A. Patten	A. E. Taft
S. W. Hamilton	H. M. Pollock	D. A. Thom
G. T. Harding, Jr.	O. J. Raeder	T. H. Weisenburg
I. G. Harris	{ Theophile Raphael	W. A. White
G. W. Henry		H. W. Woltman
	J. P. Parsons	G. I. Wright

The Committee on Arrangements, of which Dr. A. M. Barrett, medical director of the State Psychopathic Hospital, Ann Arbor, Mich., is chairman, will be glad to do anything in its power to aid members in securing rooms, or advising as to routes of travel.

Rooms may be secured also through Mr. J. A. Anderson, assistant manager, Hotel Statler, Detroit, Mich.

FIRE AT THE MANHATTAN, NEW YORK, STATE HOSPITAL.—On Sunday morning, February 18, 1923, a fire at the Manhattan State Hospital resulted in the death of twenty-two patients and three men nurses.

The fire, which was discovered about 5 a. m., started in an attic above ward 43 on the third floor of the right wing of the main building of the men's division of the hospital. An alarm was immediately sounded and a stream of water from the stand-pipe in the ward was quickly applied to the flames. In spite of the most strenuous efforts of the attendants and the fire department of the hospital, assisted by the New York City firemen, the fire spread rapidly and destroyed the entire roof and third story of the right wing of the building before it could be checked. Heroic efforts to save all patients in the burning section of the building were made, but owing to the dense volume of smoke and the falling of a water tank, the work of rescue was rendered extremely difficult. In addition to the patients whose lives were lost in the fire, two others died as the result of exposure.

The origin of the fire has not, we understand, been ascertained.

GOVERNOR SMITH AND THE N. Y. STATE HOSPITALS.—On February 21, 1923, Governor Alfred E. Smith sent to the State Legislature a message from which we extract the following:

STATE OF NEW YORK
EXECUTIVE CHAMBER

ALBANY, February 21, 1923.

To the Legislature:

The recent fire and the attendant loss of life at Manhattan State Hospital should serve as a warning and a lesson to the state to give our attention to our entire hospital and charitable groups. Whatever may be the outcome of any investigation, the fact is unquestionably known ahead of time that many buildings used for the housing of the wards of the state are old, out-of-date, and impossible of improvement, to the point where safety from fire can in any degree be guaranteed. Take the hospital group: The Binghamton State Hospital was used for the care of the insane as far back as 1879. The main building in the Binghamton group

was used as an inebriate asylum as far back as 1860. The Brooklyn State Hospital was used as an insane asylum for the County of Kings since 1855; the Buffalo State Hospital has been used as such since 1880; and the Hudson River State Hospital since 1871.

The Manhattan State Hospital, where the fire occurred, has been used for the care of the insane since 1871. The particular wing that was burned out on Sunday last was built in 1870. Some of the buildings in the Manhattan group were used for immigrants and as a homeopathic hospital as far back as 1855.

Middletown has been used as a state hospital since 1879. Rochester State Hospital was formerly the Monroe County Asylum, and was built in 1863. Utica State Hospital was opened as a hospital in 1843, and the Willard State Hospital in 1869.

In fact all of our hospitals, with the exception of Central Islip, Gowanda, and Kings Park, are of the old-fashioned construction. These buildings should be replaced by modern structures, thoroughly fire-proof, if we are to feel secure from a recurrence of the recent disaster or probably a more appalling one.

A survey of our state hospitals, recently made under the direction of the State Hospital Commission, indicates that very little structural change can be made because of the age and character of the construction of the buildings. What can be done, however, is to increase the water supply, install signal systems, and provide for additional fire-fighting apparatus. This survey shows the need of an appropriation of \$1,438,950.00, the detail of which is attached hereto and made a part of the message. This at best, in view of the age of these structures, can only help to tide us over the period until these structures that are so out-of-date are replaced by new, modern, fire resisting buildings.

I am informed that part, at least, of the loss of life occurring at Ward's Island could have been avoided if the hospital were being used to its proper capacity, but it is over-crowded and so are the rest of our state hospitals. Our mentally affected patients are growing at the rate of a thousand a year, and entirely aside from the necessity of replacements of the existing inadequate buildings, we must plan ahead for the construction of entirely new ones, in order to keep up with the growth of the population in these institutions. We cannot afford to slow this up for any reason without making more acute the problem of over-crowding. In 1919 and 1920, the total amount appropriated for new construction was \$8,969,071.62. In 1921-1922 that dropped to \$4,389,649.09. The keeping down of this appropriation will be reflected in the increase of population at a later date and make more difficult the problem.

The Governor recommends the passage of an act which will submit to the people a referendum on a bond issue for at least fifty million dollars, and suggests that even a larger sum might well be considered.

The proceeds of these bonds, if issued, he proposes shall be used to erect buildings of fire-proof construction to meet the immediate requirements of the state hospitals and to replace gradually such structures as cannot be made fire-proof. Some portion of this money is also to be used to meet like conditions in other charitable institutions of the state.

It is due to Governor Smith to say that it did not take a conflagration accompanied by loss of life to call his attention to the needs of the state hospitals.

In his annual message to the Legislature, he called attention to the overcrowding of the hospitals and asked that provision be made to correct the conditions, as well also to supply an adequate number of nurses.

It is most sincerely hoped that the Legislature in the presence of this serious condition will rise above all partisan issues and heed the call and advice of the Governor.

Book Reviews.

The Elements of Scientific Psychology. By KNIGHT DUNLAP. Professor of Experimental Psychology, Johns Hopkins University, etc. (St. Louis: C. V. Mosby Company, 1922.)

To training in psychology to-day, the traditional psychology, with its psychophysical affiliations, has somewhat the same relation as Latin and Greek to education in general. Towards classical modes of thought in psychology, Dunlap occupies a position that will always be respected, whether much or little shared. The wine of new viewpoints, he says, can not be poured into the old bottles. There may, however, be some question of how far his tempting array does represent new wine, and how far it is the old vintage, in bottles gone over with a new terminological dust-cloth. To the reviewer, it is a ripe and mellowed presentation of knowledge and concepts that arise, not wholly though essentially, under the traditions. Some colleagues may find it a gospel. The psychologist who finds it less than useful, is a very broad scholar or a very restricted one. It is not clearly intended for elementary and general use, and indeed seems over-solid for this purpose, even when one agrees with its fundamental standpoint.

From the title, one might imagine the author to be hurling another flagon of ink at the demon of "new" psychology. It is anathematized in the preface, but otherwise the tone of the book is not controversial. There is even less distinction than might be expected between fact and formulation, at least in the discussion of the affective life. The teaching value of the book thus depends somewhat on how closely teacher and author agree. In a rapidly evolving field like psychology, it is in nature difficult for teaching policies to maintain a close adjustment to new standpoints developed in practical applications, or in research done with an applied setting. How far the type of discipline here represented is a necessary foundation for psychological progress was early questioned by William James, concerning the domination of the science by the Weber-Fechner complex. With the broadening of the field, the way of entrance must become, for a time at least, more of a subjective matter. This book is a distinguished leader's guidance on the way he has found true. "Orthodoxy is my doxy; heterodoxy is another man's doxy."

F. L. WELLS.

Boston Psychopathic Hospital.

Mental Diseases: A Public Health Problem. By JAMES V. MAY, M.D., Superintendent, Boston State Hospital, Boston, Mass., etc. With a Preface by THOMAS W. SALMON, M.D., Professor of Psychiatry, Columbia University; Medical Advisor to the National Committee for Mental Hygiene, New York. (Boston: Richard G. Badger, 1922.)

Dr. Salmon very truly says in his Preface that "there is probably no group of diseases about which there is such widespread popular ignorance, or misinformation, as those that affect the mind," and Dr. May has done in the work before us very much to dispel this ignorance and correct the misinformation. A captious critic might find fault with his title in a book which is intended to correct false ideas, as well as with the quotation we have made from the preface which refers to diseases of the mind.

Mental disorders, manifesting themselves in multiform ways are symptoms, back of which lie diseases or disorders of the nervous mechanism, bad mental habits, mal-adjustments, social or otherwise personality defects, and the like, but are not disease entities. Words, or definitions, however, have different values to different men, and no real fault can be found with Dr. May's elucidation of his subject, and all will agree with Dr. Salmon's plea for a wider interest in the important problems which center around mental disorder or defect.

Dr. May's work is divided into two parts. Part I, General Considerations, is composed of 14 chapters, dealing in their order with the social and economic importance of mental diseases; the evolution of the modern hospital, legislative and administrative methods, state hospitals, their organization and functions, hospital treatment of mental diseases, the development of the psychopathic hospital, the mental hygiene movement, the etiology of mental diseases, immigration and mental diseases, criminal responsibility in mental disease, the psychiatry of war, endocrinology and psychiatry, and classification of mental diseases.

Each one of these chapters will well repay reading. There are inevitably in a work of this character, dealing as it does with many things still *sub judice*, some statements to which exception might be taken. Dr. May, however, is so conservative in what he says, bringing to his support authoritative statements from so many sources, that these instances are few and unimportant.

Part II has 17 chapters and takes up the psychoses, following the classification of the American Psychiatric Association.

Here again one might, if so disposed, enter into a discussion of the various so-called forms of mental disorder and their description.

To one who looks upon putting the varied manifestations of disordered minds into groups and putting each group into its little pigeon-hole, as an unnecessary waste of time in most instances, Dr. May's presentation of the grouping of the psychoses will be neglected for the greater interest which is found in Part I.

On the other hand, there are many who will find in the second part of the book much of value.

The pictures are well drawn and as there are often times under present conditions when such pictures must be used, they will be found to the reader, lay or medical, of much value.

The reviewer can but echo Dr. Salmon's statement that there is no book in English which covers the field so admirably.

In Memoriam

JESSE MONTGOMERY MOSHER.

As was briefly announced in the January issue of this JOURNAL Jesse Montgomery Mosher, A. M., M. D., one of its editors, died, with great suddenness, at his home in Albany, N. Y., in the early morning of December 7, 1922. He was 58 years of age.

Our deceased colleague was born in Albany, October 12, 1864, the son of Dr. Jacob Simmons Mosher, also a distinguished and forceful physician of that city, and Emma Sarr Montgomery Mosher.

He was educated at Albany Boys' Academy, where, in 1882, he won the Gansevoort medal for an essay entitled "Washington Irving." As an academician he was editor of "Boys of Albany." From the Academy he proceeded to Union College, where he distinguished himself in scholarship. He was one of the editors of "The Garnet" and of "The Diamond." During his college course, his father having died, he contributed in part to his own support in various ways. He took his Arts degree in 1886, in which year, at its winter session, he matriculated as a student in the Albany Medical College. He graduated in Medicine, with distinction, in 1889.

As far back as 1883, at the age of 19, Dr. Mosher acquired an interest in mental and nervous diseases as a visitor at Willard State Hospital, where, too, he met the younger daughter of its then Superintendent, Dr. John Bassett Chapin, Eleanor Bassett Chapin, whom he married seven years later. His wife's brother-in-law, son of the steward of Willard State Hospital, now the Rev. Wm. M. Gilbert, married an older daughter of Dr. Chapin. He spent the summer vacation of 1884 and 1885 at Willard, making himself useful there and acquiring for his prospective father-in-law the respect and admiration which he always manifested and avowed as the friendship ripened in the actual relation of family intimacy.

The writer first knew Dr. Mosher in 1886, when, although still a Senior at Union College, he was permitted by the authorities to take bread-winning duty at the Utica State Hospital as apothecary

while working for his degree in Arts. Then only 22 years of age, he was full of the enthusiasm of early manhood and brought to his work an unusual equipment, which did not include, however, a knowledge of drugs. His intelligence, quick mind, and application soon made him an efficient incumbent in the novel situation. Summer holidays at Willard had brought with them familiarity with hospital routine and he was ready and eager to lend a hand wherever he could be of assistance. At that time the AMERICAN JOURNAL OF INSANITY was edited at Utica and gave the young man the opportunity for literary work such as he enjoyed. Even thus early it was easy to discern in him the editorial capacity of which later he gave the conspicuous proof. No opportunity to prepare for his medical course in the coming winter escaped his eager grasp. Under date December 5, 1886, he wrote:

At the surgical clinic yesterday morning I asked my neighbor what was the strength of the bichloride solution in use, and he replied that he didn't know but thought it was 5 per cent. I then asked how much cocaine had been injected, and he asked his neighbor, who said 60 minims. A student directly in front swept a glance of withering scorn over us all, and said, "A drachm." Many instances, equally unimportant, give me confidence to go ahead, and I begin to appreciate the value of my experience with you.

One may be sure that a student thus wide-awake and ambitious took a good degree at the end of his course. Meanwhile the summers of 1887 and 1888 were spent at Willard where his employment was mainly in the Dispensary. Upon graduation he went immediately to Willard as Junior Assistant and within a year became Second Assistant, the Superintendent at the time being Dr. P. M. Wise. He remained in the Willard service until October, 1890, when Dr. Wise, who had been appointed Superintendent of the new St. Lawrence State Hospital, at Ogdensburg, appointed him First Assistant. In his new post Dr. Mosher found time to send many contributions to the JOURNAL. It was he who in those days was mainly responsible for the "Summary," at which he worked with untiring industry. He also wrote book reviews and not a few editorial comments. The following letter may be quoted here as an example of his epistolary style at the period. It is dated from Ogdensburg, December 18, 1890:

As you now propose to carry on business upon a strictly business basis, I hasten to comply with the courteous demand of your letter of the 12th. I opened a box of goods yesterday and fortunately hit upon that contain-

ing my file of the JOURNAL. As my interest in the JOURNAL is greatly augmented by the opportunity afforded to practice rhetoric, I am anxious to place my copies in the best condition to secure preservation, and so forward them to you for binding at once. I regret that I did not light upon more pamphlets in order to cement the friendship with your binder, but the introduction of more property into our confined quarters would necessitate the removal of our mattress to make room for books, and, however agreeable such method of absorbing knowledge might have been in my bachelor days, I fear dorsal decubitus on half-calves and marbled edges would not now obtain the unanimous consent of the house. Relying upon the beneficence of an omniscient legislature, I expect to surround myself with my goods next summer, and will then send you a batch of respectable size.

Thanking you for the assurance of a permanent place for my last contribution—a permanency to be established by the medium of publication, rather than the intrinsic worth of the contribution—I remain, etc.

Communication with the managing editor from the busy collaborator at Ogdensburg was frequent and always showed a penetrating sense of what a given editorial assignment required. Many of Mosher's letters referred to book reviews which he always wrote in crisp English and never without sound critical sense. On May 18, 1892, he writes:

I shall be greatly pleased to study and comment upon Gowers' new edition. . . . It will be a difficult matter to criticize, because Gowers is the last resort, and we flee to him always after all others have failed us. I will collect my superlatives and marshal them in line.

A few days later, he writes:

Blakiston does not seem to have gathered in the proper idea of the JOURNAL as an advertising medium, or else has discovered some emerald tint in our irides. . . . I notice a new bellicose reviewer who rejoices in the initials of the great Secretary of State. The editorial club seems to have invaded all departments of the JOURNAL, and I presume you never approach your sanctum without a large chip *in situ*.

Even when great events of domestic importance were impending, the contributor's interest in his literary work was never suffered to wane; for on June 29, 1892, he wrote:

I enclose a review of Dr. Gowers' book which I hope will meet your approval, even if its tardy appearance may have caused some annoyance, excusable by entrance upon the stage of John Chapin Mosher, who, at this early date, carries a remarkable professional air of gravity and wisdom.

After five years of productive service at the St. Lawrence State Hospital Dr. Mosher resigned, with the purpose of establishing

himself in practice at Albany. A former colleague on the staff says of him:

He had a great deal to do with the organization of the St. Lawrence State Hospital. His policy towards his patients was to give each one the fullest degree of personal initiative and self-determination consistent with their own good, and he was willing to take a risk of untoward happenings rather than impose more restrictions upon them than they may possibly have required.

Dr. Mosher's chief reason for resigning his post at Ogdensburg was his unwillingness to take orders, or brook interference, from a layman on the State Hospital Commission, who showed himself too *tenax propositi*, without background of adequate knowledge, experience or training, to make it possible for an equally pertinacious physician, who knew his work and himself, and respected both, to be patient and forbearing under a dispensation of centralized authority that irked beyond the limit of endurance.

Before taking up practice in his native city, Dr. Mosher spent six months in Vienna, Berlin, London, and Edinburgh. From Vienna, under date of December 9, 1895, he writes:

. . . . Your prognostications that I would have full play for my sense of the ridiculous in Vienna has in some measure been fulfilled, but the humor lacks completeness from the absence of an appreciative companion, and also, occasionally, from an uncertainty as to whether or not the ridiculous part of the situation is not subjective. At any rate some of the performers here would do credit to our best American variety companies, and our good friend Krafft-Ebing leads all for a first place. In fact, in the language of the turf, with which we have become more or less familiar during the last six years, he outclasses all. . . . The points that have attracted me are the great size of the hospital, the abundance of clinical material, the submissiveness of the patients, and the great diagnostic skill of the instructors. All these are well worth the journey, especially the last. I am not, however, in the way of having my medical ideas "revolutionized," as one of our friends predicted. It has always seemed necessary to me that the diagnosis should have full consideration, and I merely give these people the credit due to their grasp of the situation. Under like conditions any other failure in this line would be simply neglect. We are not all so situated in America that we may spend our lives in diagnosing and nothing else.

Again, from the same place, on January 20, 1896:

. . . . I am now experiencing the greatest good of my stay here, and begin to appreciate the advantages. One begins to regard medicine as an exact science, so glibly do these people talk. The analysis of cases is very

exact—even "humanity" plays a definite part, and seems to interfere with examination of the patient under certain well-defined circumstances. In my comparisons I have thought that what we have generally considered the "instincts" of experience—the mainstay of the old practitioner—are here put in words, and the best diagnosticians here, those who see everything from the hair to the toenails, simply explain such manifestations, as, for instance, the "feel of the skin in cancer," which saved Dr. Sherman's pride once, to my knowledge.

. . . . We feel so independent that we are happy notwithstanding the uncertainties of the future, and we want all our friends to share our mental comfort and peace.

Follows still another extract, highly characteristic, from a letter dated February 8, 1896:

Have you tried the Roentgen photography yet? I understand the negatives are easily made, and some of your deformed patients might make interesting pictures. The discovery may be utilized hereafter in the beginnings of contentions, for investigation of the various styles of backbone, so that one may know in advance where we stand. I have heard, through Dr. Shrady, that the discovery has aroused a great deal of interest, and I infer there is a chance for pioneers in all departments.

These letters tell their own story. They show with what great care and discretion, and with what high courage Dr. Mosher was preparing for the heavy responsibilities of private practice in Albany. It was not long before he made his influence felt there in many directions. The Albany Medical College and the Albany Hospital gave him a chance to show his mettle. The former made him Clinical Professor of Psychiatry and the latter furnished his clinic. It was entirely due to his vision and initiative that Pavilion F of the Albany Hospital sprang into existence as the creature of his mind and heart. This was the first psychiatric department to be built, as a separate and independent unit, in connection with any American hospital. Too modest himself to make the claim of leadership in this cause, the JOURNAL may now hail its deceased humane and far-seeing editor pioneer in the enterprise, "lest we forget."

The innovation marked an epoch in the treatment of mental diseases and has had far-reaching consequences, not alone in this country but abroad. And it was characteristic of the originator that he would not listen to any suggestion of strange-sounding name of Greek derivation to describe the purpose of the annex. "Pavilion F" satisfied him and it satisfies the patients who may

go there, without the encumbrance of red tape, and enjoy the same rights and privileges of treatment as other sick folk. Verily, a great monument ! In Pavilion F the patient had every liberty consistent with his condition as a mental invalid. A correspondent says :

He would not keep a patient who had expressed a wish to leave, and even though the patient, after demanding his discharge, recanted and asked to remain, he would insist upon his leaving.

And the writer of that sentence adds :

I am constantly aware of qualities in my own mind that were planted there or stimulated to growth by Mosher, and I would not be without them.

In connection with Dr. Mosher's early enterprises in Albany one should not fail to mention the *Albany Medical Annals*, a journal which he edited, up to the time of his death, with great literary ability. Some of the editorials of that excellent publication are little masterpieces, discovering the masterhand that penned them.

As the years passed, Dr. Mosher became widely known in Albany, and the populous communities adjacent thereto, as a specialist in mental and nervous diseases. His clinical teaching at the College and his writing enhanced that reputation. In a memorial minute of the Medical Society of the County of Albany the Committee states :

He was called a therapeutic nihilist and it would be easy to show, by illustrative cases, that his estimate of drugs was as apt to promote the welfare of patients as any that obtains.

In November, 1916, Dr. Mosher suffered from a duodenal ulcer which, as was not discovered till nearly two years later, perforated and discharged some intestinal contents into the peritoneum. A letter, written August 9, 1918, from Glenmont, N. Y., is of moving personal and surgical interest in this context :

We are all, I presume, somewhat fearful of the man who has his own case history to report, and I have resolved to exercise proper caution in the infliction of my narrative upon my friends. . . . At about the hour the Albany postman presented your note at my office on June 15, Dr. Sampson was messing around within my abdomen to discover the source of the distress to which I have been subjected at more or less irregular intervals during the last five years, and which had lately become so uncertain and importunate that I invited my good wife to accompany me to New York at our last very pleasant session, that I might not spend the

night alone in a hotel room. As might have been expected from a gentleman of my dramatic and more or less politician-like character, Dr. Sampson, Dr. Hun, and Dr. Ordway, who all manifested an interest and affection which seemed much beyond my merits, were treated to a surprise—to such an extent that Dr. Sampson was led to announce to me, some three days after, that I had no right, scientifically speaking, to be alive. I mention this, incidentally, as revealing the fact that occasionally there is an individual whose destinies are guided by a higher power than that of science (you may capitalize whichever word you will). There lay upon the surface of the liver and of the stomach some hard nodules which might have been many things but were probably malignant. The effects of this discovery were somewhat entertaining. At his visit the next morning Sampson blackguarded me like a longshoreman and resorted to the extraordinary use, for him, of profanity; Ordway said he had not slept all night; and Hun, most accomplished villain, smiling like the traditional scuttler of ships baffled my closest scrutiny of his words and manner in my effort to discover any possibility of what I had feared. When the laboratory report came in, to make my long story short, or not too long, the mysterious neoplasms were found to consist—of all things—of food. There was a duodenal ulcer which perforated in November, 1916, discharged some intestinal contents into the peritoneum, and the attack which suddenly prostrated me at that time, while I was making my hospital visit, was peritonitis. Maybe you can picture the sentiments of my friends during the interval between the discoveries of the operating room and those of the laboratory. I am bound to say that they gave no intimation of any plan to supply vacancies which might be created but manifested such cordial thankfulness that my work will be continued with them that I am regarding all human nature with a softened vision. Then Sampson looped up my jejunum with my greater curvature, made a new orifice and so a channel for the transmission of nourishment which relieves the duodenum of its office. This appears to have been beneficial and is hoped to be curative. It places a man at a little disadvantage in its possibilities of affording twice as much opportunity for the emptying of the stomach as for the filling of it, but I am attempting to meet this obligation with discretion.

And now, having made advantage of your friendship for the only discussion of my case which I shall give, and trusting to your forbearance in the matter, I have simply to report that I am loafing about the bungalow awaiting energy and endurance. Those seem to come slowly, and perhaps I shall not be able to return to work in September, which was the latest date agreed upon but now seems dreadfully near. The episode of the operation is complete and it may be that my long years of close application now exact the penalty, which I must acknowledge, and await the restoration of ambition. This is the greatest exhibition of mental activity which I have given in the two months.

In the following year Dr. Mosher had a great grief in the death of his younger brother, Howard Townsend Mosher, "a superfine

character—a sensitive mixture of persistence, rectitude, and gentleness.”

It may be questioned whether, in the years following this operation, markedly successful as it was, his strength and vitality were ever fully restored. But his numerous and diversified activities were continued, especially at Pavilion F and in editorial work on the *Annals*. In his leisure he loved to let his ideas play around a busy pen and take form, as a happy phrase slipped from its point, in his beautiful handwriting.

As trustee of Albany Academy, of Albany Orphan Asylum, of Union College, of the Young Men's Association, or as vestryman of St. Paul's Church, he neglected no duty. His rector once said, when called upon to make an important decision, “There are but very few persons whose opinion can help me to decide this question, and prominent among them is ‘Mont’ Mosher.”

It had seemed to his family, during the past summer and fall, that he had gained appreciably in vigor and strength. He had himself spoken many times of this improvement. He went to bed, after his day's work, which included a visit to Pavilion F, apparently in good health and excellent spirits. About half-past three in the morning of December 7, he awoke in great pre-cordial pain, for which he called for relief by hot water. Mrs. Mosher absented herself from the room for a few minutes; when she returned he was unconscious, never spoke again, and soon died. It is now recalled that during the past dozen years he had a number of ill-defined anginal attacks, the pain not being intense. The remarkable annuli seniles which he had in his corneæ from youth made some of his medical friends anticipate and apprehend these attacks.

This being a medical journal, there can be no impropriety in giving in full the findings at the necropsy, for which the writer is indebted to Dr. Hun, of Albany:

The most important condition demonstrated at Dr. Mosher's necropsy and what undoubtedly caused his sudden death was found in his heart. The anterior descending branch of the left coronary artery about 2 cm. below the auriculo-ventricular sulcus was almost occluded by an athero-sclerotic plaque about 2 cm. long and eccentrically placed; so that only the minutest slit could be seen. No thrombus was found. The heart was practically of normal size, with slight hypertrophy of right ventricle and dilation of right auricle. The valves were essentially normal. The myocardium of

the left ventricle was considerably scarred and an area about 3 x 2 cm. along the left border, just below the auriculo-ventricular groove, was practically entirely replaced by fibrous tissue, very few muscular fibers remaining. This constitutes an old, or healed, infarct, due to gradually progressive anemia, concomitant with the stenosis of the coronary artery mentioned above. No acute myocardial degeneration could be found, even with the microscope.

The splanchnic viscera showed acute congestion. No gastric cancer or ulcer was found. The gastrojejunostomy must have functioned perfectly, as the opening was about 2½ cm. in diameter. A milky white body beneath the liver capsule contained what appear to be vegetable fibers, but I must give this more study. It seems something of this same nature was found in a piece of liver removed at the time of his gastrojejunostomy.

As already stated, Dr. Mosher married, in 1890, Miss Eleanor Chapin, of Philadelphia, daughter of the Late Dr. John B. Chapin, Physician-in-Chief of the Pennsylvania Hospital for the Insane. Their children are John Chapin Mosher, Mrs. Courtenay Brandeth, of Ossining, and Mrs. Frederick B. Gutelius, of Plattsburgh.

Dr. Mosher is also survived by two brothers, the Right Reverend Gouverneur Mosher, Episcopal bishop of the Philippines, and Carroll Le Roy Mosher, of Haworth, N. J.; as well as by a sister, Mrs. Franklin Knight, of Holyoke, Mass.

Such, with many gaps and imperfections in the record, is the story of the life of our fellow editor. It is not difficult to set down the biographical data gleaned from one's own memory and other sources, but to seize, and describe in appreciation, the character that underlay Dr. Mosher's career and exploits is a challenge which this biographer cannot meet adequately. He is reminded in the undertaking that it is as difficult to write a good life as to live one, but at least he may bring to it a discriminating sympathy. Happily, Mosher possessed in an eminent degree the gift of self-expression in his correspondence, and the letters, or extracts from them, here printed, suffice in themselves to reveal the quality of the mind and heart whence they sprang. Letter-writing, as Mosher conceived and practiced the art, belonged rather to a generation even older than his own. It was an art in which he was past-master—faultless English, and never without that pawky humor which savored all his compositions. The old Roman, whose name was given to a county and lake in New York State, in

and by the shore of which Mosher spent many happy, care-free days, and who declared that "the first proof of a well-ordered mind is to be able to pause and linger within itself," had known aforetime men of Mosher's mold. Whenever he let himself go in speech, public or private, or in letters to his intimates, there was never any doubt where he stood on any issue of the hour, for he was always sincere, unafraid, and vertebrate; and the genial spirit of his friendship was woven into the texture of the spoken or written word. In addition to strong conviction and the courage that went with it, the revelation was of a love for mankind which, indeed, with him, was no mere condition of mind but a creed. The fibres of his moral nature were of the finest, showing themselves as threads of gold in all that he wrought, either as physician or citizen. He had high ideals; strong opinions, with a singular sense of rightness in holding them, and, as was not unnatural in the circumstances, little capacity for compromise, or, indeed, any disposition to swerve from a position which had once been deliberately chosen. With him, "a finger-post [and oftentimes his own finger was the index] pointing the way was better than a mausoleum of misdirected energy."

It was inevitable that a man with such a sense of direction, strong in his own strength, and unshakable, should sometimes encounter opposition. If he could not always win support and co-operation in all that he proposed and performed, he took and kept his own gait, heedless of those who were in his way or pursuing different paths, and was content to be alone. Numerous instances of this attitude of mind might be cited, none of which was more characteristic than his determination not to accept some of the newer ideas in psychiatry or to adopt the newer terminology. Dementia præcox, for instance, was never admitted to his scientific vocabulary, as to which, be it now said, he lived to witness a reaction, after many years, against the use of a term that offended not only his critical sense but his humane principles. Similarly, and by the like token, psychanalysis, in his estimate, was mere *nomen et flatus vocis*, and its subliminal disclosures and dubious interpretations left him, if sometimes amused, always cold. It would be a grave error, however, to infer that he was a reactionary or scornful of novelties or neologisms, as such. He insisted upon proving all things by subjecting them to the analysis

of a keen, disciplined, and logical mind before they could have part or parcel in his own scheme of professional onwardness and thoroughness. It were not too much, and certainly not invidious, to speak of this quality as doggedness. Yet he was free from the offense of pride of opinion in the sense of being an egotist. His own personality, unlike Peel's, did not, as was once said of that statesman by Gladstone, occupy "rather a wide area in his range of vision." In many ways, indeed, he was shy and diffident, especially in mixed company, but never without a sense of intellectual independence and self-sovereignty. Some men might regard the qualities to which we have just referred as a handicap. Doubtless they were in so far as they made against co-operation and leadership in the worthy causes which enlisted the sympathy of his active mind and great heart. Others, among whom the writer is pleased to count himself, saw in them only the mark of a strong individuality, of a great force of will, and of an unyielding independence of judgment based on the rock of honest opinion. Happily these traits of character were embodied in a nature that was genial at the core; and, moreover, an essential ingredient of Mosher's charm lay in that sense of humor which always saved the situation by enabling him to see everything, including himself, in the proper perspective, and to delight his friends whenever he was moved to exhibition of that God-given grace. No man was ever a greater stranger to selfishness or, indeed, to other vices of character that militate against the conception of that for which the American *gentleman* stands. Truly, he realized in character and conduct the happy description of what that word connotes—though so elusive of verbal definition—as concisely conceived by Dr. Henry Van Dyke, "a real man who deals honestly, bravely, frankly, and considerately with all sorts and conditions of other real men."

Mosher had not studied and become versed in the humanities at college without reflecting that priceless acquisition in the ripeness of his manhood. He loved the classics and was ever ready with apt quotation from that well of wisdom.

And so, our friend, in the translated phrase of one of his favorite authors, "lives in life that ends not with his breath."

Naturally, too, loving, as he did, the poetry of Robert Burns, he must have known that, when dying, the poet said, "John, do not

let the awkward squad fire over my body." The present writer may well have a sense of such awkwardness in this farewell salute. Albeit the tribute is one of profound respect for a life well-lived, of gratitude for a friendship with which he had been honored and blessed for many years, and a token of sorrow and reverence for the friend that is gone. But, if that mind and heart are lost to us, we may yet find solace in the thought, *quidquid amavimus, quidquid mirati sumus manet, mansurumque est in animis*.

Did not God give us memory that we might have roses in December?

I expect, when night falls, to have my house full of visitors;
The ghosts of past days, foul and fair.
And I am prepared to salute all alike, courteously,
To thank some of them that they are now but shadows,
And the others, that they were once alive.

G. ALDER BLUMER.

196 Blackstone Boulevard,
Providence, R. I.

HERBERT JAMES HALL.

Herbert James Hall, M. D., of Devereux Mansion, Marblehead, Mass., died February 19, 1923. Dr. Hall would have become a Fellow of the American Psychiatric Association at its next meeting, as his application had been approved at the 1922 meeting.

Dr. Hall was born March 12, 1870, at Manchester, N. H., and was the son of Marshall Parker Hall and Susan Maria (James) Hall. A brother, the Rev. Newton M. Hall, D. D., of Springfield, Mass., survives him.

Graduating in medicine from Harvard University in 1895, Dr. Hall became resident house officer at the Children's Hospital, Boston, "where he showed much ability in suggesting original methods in the treatment of and appliances for crippled children."

In 1896 he located in Marblehead, doing a general practice but soon became interested in nervous disorders and especially in the application of occupational therapy. In 1904 he opened a workshop, with the assistance of Miss Jessie Luther, where his patients were instructed in pottery, weaving, and basketry. Later metal work and carpentry were added. Dr. Hall stressed the value of well made articles which give a feeling of satisfaction and self-

respect to the maker. By 1912 his methods of treatment had proved so satisfactory that he opened Devereux Mansion as a sanitarium and gave his whole time to the treatment of resident cases. Continuing to develop the "work cure" Devereux Mansion soon became a mecca for students of occupational therapy.

Dr. Hall's first paper, written in 1897, was upon surgical gauzes. He was a facile writer and made numerous contributions to medical literature and to that upon occupational therapy. With Miss Mertice C. Buck he wrote *The work of Our Hands*, and *Handicrafts for the Handicapped*. He also wrote two books of poems, *Moonrise*, and *The Sea Awaits*. Two books of medical essays, *The Untroubled Mind*, and *War Time Nerves*, made a popular appeal.

For two years Dr. Hall was President of the American Occupational Therapy Association. He was also a member of the American Medical Association, Massachusetts Medical Society, Boston Medical Library Association, Alumni Society of the Massachusetts General Hospital, Children's Hospital Alumni Society of Boston, Board of Trustees of the Massachusetts Mental Hygiene Association, Children's Island Corporation, Board of Directors of the Occupational Therapy Bureau of Boston, President of the Medical Workshop Corporation, Board of Trustees of the Mary A. Alley Hospital, and the Corinthian Yacht Club.

Dr. Hall was a man of broad interests and for a number of years has played tympani in an amateur orchestra as a recreation. Quiet and unassuming, he appeared reserved on first acquaintance, but one soon discovered his personal charm and kindly nature.

During the last eight months of his life Dr. Hall suffered from an infection of the hip which required several operations and long hospital care. During this time he wrote several articles and kept in touch with his associates. Only death could quench his energetic spirit.

A widow, son, and daughter survive him.

W. R. D.

Appointments, Resignations, Etc.

- ARTHUR, DANIEL HUTSON, Assistant Physician at Bridgewater State Hospital at Bridgewater, Mass., died December 19, 1922, aged 61.
- ASHLEY, DR. MAURICE C., Superintendent of Middletown State Homeopathic Hospital at Middletown, N. Y., resigned after more than twenty years service.
- BAGLEY, DR. CARLETON T., Assistant Physician at Binghamton State Hospital at Binghamton, N. Y., resigned October 10, 1922.
- BARTH, DR. CLARENCE W., Assistant Physician at Hudson River State Hospital at Poughkeepsie, N. Y., resigned June 25, 1922.
- BERGMAN, DR. M. WEINSTOCK, appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., December 1, 1922.
- BERRY, DR. JOHN H., Superintendent of Athens State Hospital at Athens, Ohio, elected President of Athens County Medical Society.
- BOLTON, DR. HARRIS M., Assistant Superintendent of Montana State Hospital for the Insane at Warm Springs, resigned.
- BOLTZ, DR. OSWALD, appointed Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., September 1, 1922.
- BONNYMAN, DR. DOUGLAS D., Medical Interne at Middletown State Homeopathic Hospital at Middletown, N. Y., promoted to Assistant Physician, June 1, 1922.
- BRADLEY, ISABEL A., Assistant Physician at Columbus State Hospital at Columbus, Ohio, elected President of Ohio Association of Assistant Physicians of State Hospitals.
- BROGDEN, MISS MARGARET C., in charge of social service at Johns Hopkins Hospital, appointed to Maryland Board of Mental Hygiene.
- BURCHELL, DR. SAMUEL C., appointed Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., July 1, 1922.
- BURNS, DR. MARYESTHER, Medical Interne at Manhattan State Hospital at Wards Island, N. Y., resigned September 1, 1922.
- CALDWELL, DR. CHARLES BURR, Managing Officer of Lincoln State School and Colony at Lincoln, Ill., died suddenly December 17, 1922, aged 43.
- CASTRO, DR. HERMAN, appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., October 2, 1922.
- CHENEY, DR. CLARENCE O., Assistant Director of the New York Psychiatric Institute, appointed Assistant Superintendent of Utica State Hospital, in charge of the Marcy Division, assuming duty September 1, 1922.
- CLARKE, DR. CHARLES K., Medical Director of the Canadian National Committee for Mental Hygiene, has been invited to deliver the Maudsley lecture on psychiatry at the congress of the British Medico-Psychological Association in London in 1923.
- COE, DR. HENRY WALDO, recently presented to the city of Portland, Oregon, a large equestrian statue of Theodore Roosevelt. It was unveiled November 11, 1922.
- COHEN, DR. AARON, appointed Medical Interne at Kings Park State Hospital at Kings Park, N. Y., April 6, 1922, promoted to Assistant Physician July 1, 1922, and resigned August 1, 1922.
- CROFUTT, DR. EDWARD J., appointed Assistant Physician at Brooklyn State Hospital at Brooklyn, N. Y., December 18, 1922.
- DALEY, DR. MARK J., Assistant Physician at Hudson River State Hospital at Poughkeepsie, N. Y., returned from leave of absence May 1, 1922, and resigned December 31, 1922.
- DAYTON, DR. NEIL A., elected Secretary-Treasurer of Massachusetts Association of Assistant Physicians.

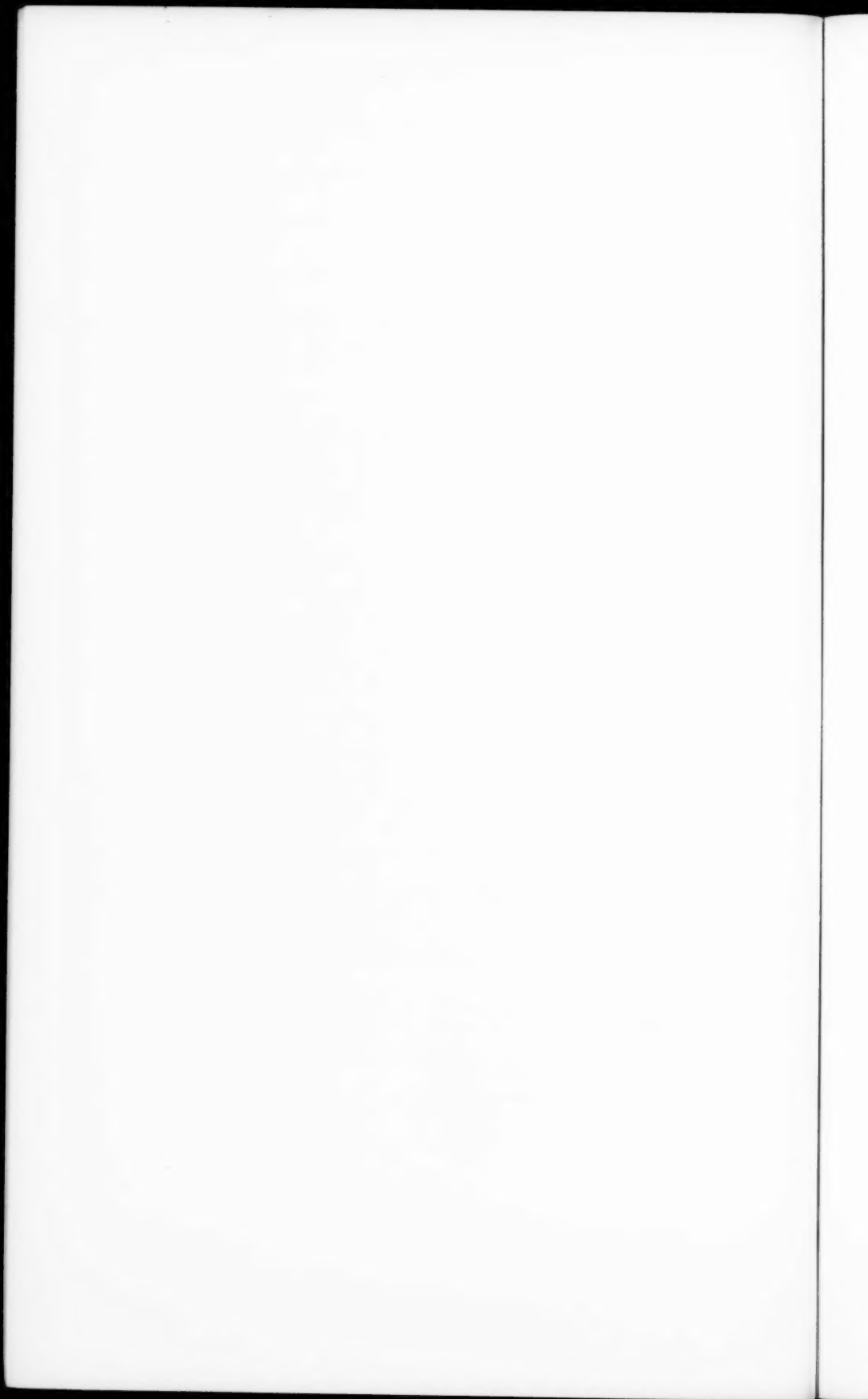
- DEDERER, DR. EBBA A., Senior Assistant Physician at Rome State School at Rome, N. Y., transferred to Hudson River State Hospital at Poughkeepsie, N. Y., October 20, 1922.
- DEXTER, DR. RODERICK B., elected Vice-President of Massachusetts Association of Assistant Physicians.
- DONAHOE, DR. R. A., Medical Intern at Kings Park State Hospital at Kings Park, N. Y., resigned October 31, 1922, to enter private practice in Massachusetts.
- DREWRY, DR. WILLIAM F., Superintendent of Central State Hospital at Petersburg, Va., appointed on the board of criminal mental hygiene.
- EVARTS, R. HERMAN C., First Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., retired January 1, 1923.
- FARRAR, DR. CLARENCE B., Chief Psychiatrist, Department Soldiers' Civil Re-Establishment, Ottawa, Ontario, appointed Medical Superintendent of Homewood Sanitarium, Guelph, Ontario.
- FEIGEN, DR. SAMUEL, Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., resigned September 25, 1922.
- FIALKO, DR. NATHAN, Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., resigned May 24, 1922.
- FOLSOM, DR. RALPH, Senior Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., appointed First Assistant Physician at Central Islip State Hospital at Central Islip, N. Y., December 14, 1922, and transferred to Manhattan State Hospital January 1, 1923.
- FRENCH, H. FINDLAY, appointed to Maryland Board of Mental Hygiene.
- FRIEDRICH, DR. CHARLES, Assistant Physician at St. Lawrence State Hospital at Ogdensburg, N. Y., resigned June 30, 1922.
- FRITZ, DR. JOHN, appointed Assistant Physician at Brooklyn State Hospital at Brooklyn, N. Y., September 2, 1922.
- GARFINKEL, DR. ARTHUR, Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., resigned April 15, 1922.
- GOLDSMITH, DR. THOMAS B., appointed Medical Intern at Kings Park State Hospital at Kings Park, N. Y., August 1, 1922.
- GOLICK, DR. WILLIAM W., appointed Medical Intern at Utica State Hospital at Utica, N. Y., September 18, 1922, and resigned October 31, 1922.
- GOSS, DR. ARTHUR V., Superintendent of Taunton State Hospital at Taunton, Mass., resigned after thirty years service.
- GRAHAM, DR. SAMUEL A., appointed Managing Officer of Lincoln State School and Colony at Lincoln, Ill.
- GREEN, DR. LEE M., Assistant Physician at Buffalo State Hospital at Buffalo, N. Y., resigned July 1, 1922.
- GREENE, DR. RANSOM, appointed Superintendent of Taunton State Hospital at Taunton, Mass.
- GREGORY, DR. M. S., Alienist at Bellevue Hospital, New York City, has returned from a trip abroad.
- HAINES, DR. THOMAS H., of the National Committee for Mental Hygiene, conducted a mental survey of North Dakota during the fall.
- HAMILL, DR. FRANK C., appointed Medical Intern at St. Lawrence State Hospital at Ogdensburg, N. Y., November 8, 1922.
- HAMILTON, DR. SAMUEL W., Medical Director of the Philadelphia Hospital for Mental Diseases at Philadelphia, Pa., resigned October 6, 1922, and appointed Assistant Medical Director of National Committee for Mental Hygiene.
- HARDY, DR. LEGRAND, appointed Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., September 6, 1922, and resigned January 1, 1923.
- HASTINGS, DR. C. J. O., Health Officer at Toronto, Canada, has recommended that the Board of Education make provision for the separate instruction of mentally defective pupils.
- HATHAWAY, DR. ROBERT E., appointed Superintendent of Montana State Hospital for the Insane at Warm Springs.
- HATTIE, DR. WILLIAM H., formerly Superintendent of Nova Scotia Hospital at Halifax, and recently Health Officer of Nova Scotia, appointed to the chair of public health and hygiene at Dalhousie University.

- HAYES, DR. ALBERT L., Assistant Physician at Hudson River State Hospital at Poughkeepsie, N. Y., resigned April 30, 1922.
- HEREFORD, DR. MELVIN D., appointed Medical Interne at Kings Park State Hospital at Kings Park, N. Y., December 4, 1922.
- HERMAN, DR. WILLIAM, appointed Assistant Physician at Henry Phipps Psychiatric Clinic at Baltimore, Md.
- HERRING, DR. ARTHUR P., formerly Secretary to the State Lunacy Commission of Maryland, appointed Commissioner of Mental Hygiene, under law reorganizing departments of state government which went into effect January 1, 1923.
- HILL, DR. JAMES W., formerly Superintendent of Institution for Feeble-minded Children at Frankfort, Kentucky, died January 19, 1923, from chronic nephritis, aged 53.
- HIWALE, DR. GOVIND S., appointed Medical Interne at Middletown State Homeopathic Hospital at Middletown, N. Y., January 1, 1923.
- HOBBS, DR. ALFRED T., Superintendent Homewood Sanitarium, Guelph, Ontario, resigned on account of ill health.
- HODGINS, DR. R. S., Dentist at St. Lawrence State Hospital at Ogdensburg, N. Y., resigned November 27, 1922, to take up private practice in Great Neck, L. I.
- HORN, DR. A. H., formerly of Michigan Home and Training School for Feeble-minded at Lapeer, appointed Assistant Superintendent of State Hospital No. 1 at Fulton, Mo.
- HULBERT, DR. JOHN R., appointed Medical Interne at Gowande State Homeopathic Hospital at Collins, N. Y., September 15, 1922; and resigned October 16, 1922.
- JOHNSTON, DR. JULIAN, appointed Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., August 1, 1922; and resigned December 1, 1922.
- JONES, CYRUS E., lay member of New York State Lunacy Commission, died.
- JONES, DR. LODRICK P., Superintendent of Georgia State Sanitarium at Milledgeville, died December 7, 1922, aged 72.
- KAHN, DR. SAMUEL, Assistant Physician at Kings Park State Hospital at Kings Park, N. Y., resigned June 26, 1922, and appointed Resident Physician at the workhouse and penitentiary, Department of Correction, Welfare Island, N. Y.
- KILGOUR, DR. GUY G., appointed Assistant Physician at Anna State Hospital at Anna, Ill.
- KIRSCH, DR. NATHAN R., Dental Interne at Central Islip State Hospital at Central Islip, N. Y., resigned July 1, 1922.
- LAMBERT, DR. CHARLES I., First Assistant Physician at Bloomingdale Hospital at White Plains, N. Y., resigned to enter private practice in New York City.
- LANGNER, DR. HELEN, appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., June 28, 1922.
- LAPP, DR. CHAUNCEY M., appointed Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., July 15, 1922.
- LAPP, DR. SHIRLEY, appointed Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., July 15, 1922.
- LAUGHLIN, DR. E. ROSS, Medical Interne at St. Lawrence State Hospital at Ogdensburg, N. Y., resigned August 25, 1922.
- LESOINE, DR. LOUIS F., appointed Assistant Physician at Gowanda State Homeopathic Hospital at Collins, N. Y., May 7, 1922, and resigned September 15, 1922.
- LEVIN, DR. H. L., appointed Senior Assistant Physician at Buffalo State Hospital at Buffalo, N. Y., September 1, 1922.
- LOCKE, DR. HERSEY GOODWIN, Professor of Neuro-Psychiatry at Syracuse University College of Medicine at Syracuse, N. Y., died October 6, 1922, aged 69.
- LUPO, DR. CARL W., appointed Assistant Physician at Brooklyn State Hospital at Brooklyn, N. Y., August 8, 1922, and resigned October 15, 1922.
- LYBYER, DR. PAUL, appointed Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., May 3, 1922, and resigned July 23, 1922.
- MCCANDLISS, DR. ROBERT J., appointed Assistant Physician at Kings Park State Hospital at Kings Park, N. Y., July 1, 1922.
- McKAY, DR. WALTER HAROLD, Assistant Physician at Institution for the Feeble-minded at Columbus, Ohio, died October 25, 1922, aged 32, from tuberculosis.
- MACAULEY, DR. J. L., appointed Medical Interne at Utica State Hospital at Utica, N. Y., September 14, 1922.

- MACLACHLAN, DR. KENNETH L., appointed Assistant Physician at St. Lawrence State Hospital at Ogdensburg, N. Y., September 22, 1922, and resigned October 31, 1922.
- MELLUS, DR. EDWARD LINDON, formerly connected with Massachusetts State Hospital Service, died December 17, 1922, aged 74.
- MILLS, MISS HARRIET M., of Syracuse, N. Y., appointed to New York State Hospital Commission by Governor Smith. She is the first woman member of this commission.
- MOFFATT, DR. HOWARD, Medical Interne at Manhattan State Hospital at Wards Island, N. Y., resigned April 21, 1922.
- MORGAN, DR. JOHN J. B., Director of the Psychologic Clinic in the State University of Iowa College of Medicine at Iowa City, addressed the twenty-third annual meeting of the Nebraska Conference of Social Workers at Omaha, February 12, 1923, on The Menace of the Feeble-minded.
- MOSHER, DR. JESSE MONTGOMERY, of Albany, N. Y., an Editor of this Journal, died suddenly, December 7, 1922, aged 58.
- MUNRO, HENRY CLAY, formerly Superintendent of Atlantic County Hospital for the Insane at Pleasantville, N. J., died September 16, 1922, from tuberculosis, aged 42.
- O'CONNOR, DR. LILLIAN, appointed Medical Interne at Utica State Hospital at Utica, N. Y., September 20, 1922, and resigned November 30, 1922.
- OLSEN, DR. JOHN H., appointed Dentist at St. Lawrence State Hospital at Ogdensburg, N. Y., November 28, 1922.
- PARKER, DR. CHARLES S., Senior Assistant Physician at Kings Park State Hospital at Kings Park, N. Y., promoted to First Assistant Physician December 22, 1922.
- PARSELL, DR. LOUIS A., Assistant Physician at Hudson River State Hospital at Poughkeepsie, N. Y., granted a year's leave of absence January 9, 1923.
- PATTELL, DR. ARTHUR E., elected President of Massachusetts Association of Assistant Physicians.
- PEARCE, DR. MARVIN G., appointed Medical Interne at Brooklyn State Hospital at Brooklyn, N. Y., July 19, 1922, and resigned December 8, 1922.
- PECK, DR. MARTIN W., Medical Officer at Boston Psychopathic Hospital at Boston, Mass., appointed Chief of the Out Patient Department.
- PETERFY, DR. ALBERT B., appointed Medical Interne at Hudson River State Hospital at Poughkeepsie, N. Y., April 8, 1922, and promoted to Assistant Physician December 1, 1922.
- PIKE, DR. HORACE V., Assistant Physician at State Hospital for the Insane at Danville, Pa., appointed Director of the mental health clinic at Wilkes-Barre, Pa.
- PINDLER, DR. L. A., Assistant Physician at Central Islip State Hospital at Central Islip, N. Y., resigned September 11, 1922, to enter private practice in Los Angeles, Cal.
- PINKHAM, DR. JOSEPH GURNEY, Consulting Surgeon to Danvers State Hospital at Danvers, Mass., died December 1, 1922, aged 83, from arteriosclerosis.
- PRICE, DR. SUSAN A., Assistant Physician at Eastern State Hospital at Williamsburg, Va., appointed Assistant Physician at Weston State Hospital at Weston, W. Va.
- PURNELL, DR. CAROLINE M., Gynecologist to the Friends Hospital, the State Hospital for Insane at Norristown, and the State Hospital for Chronic Insane at Wernersville, died February 3, 1923, aged 57.
- RAYMOND, DR. HERMAN L., Assistant Physician at Gowanda State Hospital at Collins, N. Y., promoted to Senior Assistant Physician July 1, 1922.
- REICHENBACH, DR. EVELYN B., appointed Medical Interne at Rochester State Hospital at Rochester, N. Y., July 1, 1922.
- REILY, DR. JOHN A., Director of the State Department of Institutions of California resigned, and reappointed Superintendent of Southern California State Hospital at Patton.
- REISSIG, DR. ARTHUR J., appointed Assistant Physician at Buffalo State Hospital at Buffalo, N. Y., August 1, 1922.
- RICHARDSON, DR. WILLIAM W., has again become resident medical director of Mercer Sanitarium at Mercer, Pa.
- ROBINSON, DR. D. C., appointed Medical Interne at Utica State Hospital at Utica, N. Y., December 1, 1922.

- ROSANOFF, DR. AARON J., First Assistant Physician at Kings Park State Hospital at Kings Park, N. Y., resigned August 21, 1922, to enter private practice in Los Angeles, Cal.
- ROSENBLATT, DR. MORRIS, Dental Interne at Central Islip State Hospital at Central Islip, N. Y., promoted to Assistant Physician (Dentist) February 1, 1922.
- RUBINO, DR. THOMAS J., appointed Medical Interne at Brooklyn State Hospital at Brooklyn, N. Y., July 1, 1922, and resigned July 9, 1922.
- RUSSELL, DR. M. PEARL, appointed Medical Interne at Kings Park State Hospital at Kings Park, N. Y., September 4, 1922.
- SANFORD, DR. WALTER H., Pathologist at Kings Park State Hospital at Kings Park, N. Y., transferred to Manhattan State Hospital December 1, 1922.
- SCANLAND, DR. J. M., Superintendent of Montana State Hospital at Warm Springs, resigned.
- SCHURER, DR. MARTIN, Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., resigned April 15, 1922.
- SEIWELL, DR. HARRY S., Superintendent of Eastern State Hospital at Lexington, Ky., resigned.
- SHAPIRO, DR. CHARLES S., appointed Assistant Physician at Hudson River State Hospital at Poughkeepsie, N. Y., and resigned June 15, 1922.
- SHOCKLEY, DR. FRANCIS M., appointed Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., April 1, 1922, and resigned September 16, 1922.
- SILVERMAN, DR. BARNET, Medical Interne at Manhattan State Hospital at Wards Island, N. Y., resigned August 25, 1922.
- SULLIVAN, DR. HARRY S., appointed Assistant Physician at Sheppard and Enoch Pratt Hospital at Towson, Md.
- SWINT, DR. ROGER C., Assistant Physician at State Sanitarium at Milledgeville, Ga., promoted to Superintendent.
- SYZ, DR. HANS C., of Zurich, Switzerland, appointed Assistant Physician at Henry Phipps Psychiatric Clinic at Baltimore, Md.
- SZWAJKART, DR. ADAM, Director of Cook County Psychopathic Hospital, died September 25, 1922, from heart disease, aged 61.
- THOM, DR. DOUGLAS A., Chief of the Out Patient Department of Boston Psychopathic Hospital at Boston, Mass., appointed Director of the Division of Mental Hygiene of the State Department of Mental Diseases.
- THOMAS, DR. VICTOR D., Assistant Physician at Buffalo State Hospital at Buffalo, N. Y., resigned October 15, 1922.
- THOMPSON, DR. HENRY M., Assistant Physician at Woodcroft Hospital at Pueblo, Colo., resigned to enter private practice in Los Angeles, Cal.
- THORNBURGH, DR. HERBERT T., appointed Superintendent of Eastern State Hospital at Lexington, Ky.
- THORNE, DR. CLARENCE W., appointed Medical Interne at Brooklyn State Hospital at Brooklyn, N. Y., May 1, 1922, and resigned June 24, 1922.
- TIFFANY, DR. WILLIAM J., Pathologist at Manhattan State Hospital at Wards Island, N. Y., appointed Clinical Director at Kings Park State Hospital September 1, 1922.
- TUCKER, DR. HYMAN, Medical Interne at Brooklyn State Hospital at Brooklyn, N. Y., promoted to Assistant Physician July 1, 1922, and resigned October 15, 1922.
- TRAVIS, DR. JOHN H., appointed Assistant Physician at Buffalo State Hospital at Buffalo, N. Y., August 5, 1922.
- TUSAK, DR. ERVIN, appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., August 1, 1922, and resigned October 1, 1922.
- TWOHEY, DR. JOHN JOSEPH, Medical Superintendent of Providence Retreat at Buffalo, N. Y., died October 29, 1922, from uremia and chronic nephritis, aged 61.
- VEEDER, DR. WILLARD H., appointed Pathologist at Rochester State Hospital at Rochester, N. Y., July 1, 1922.
- VOORHEES, DR. EARLE W., appointed Medical Interne at Hudson River State Hospital at Poughkeepsie, N. Y., June 16, 1922, and promoted to Assistant Physician October 1, 1922.
- WALKER, DR. IRWIN MILLER, appointed Medical Interne at Buffalo State Hospital at Buffalo, N. Y., July 5, 1922.

- WATERMAN, DR. CHESTER, Senior Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., resigned December 31, 1922, to become First Assistant Physician at Middletown State Hospital at Middletown, Conn.
- WERTHEIMER, DR. F. I., recently connected with the Psychiatric Clinic at Munich, Germany, appointed Assistant Physician at Henry Phipps Psychiatric Clinic at Baltimore, Md.
- WESTON, DR. ALBERT T., appointed Medical Interne at Central Islip State Hospital at Central Islip, N. Y., December 1, 1922.
- WHITE, DR. WILLIAM A., Superintendent of St. Elizabeth's Hospital at Washington, D. C., has announced the establishment of a school at the hospital for the instruction of physicians in the treatment of mental and nervous diseases.
- WISNER, DR. WILLIAM DORR, Medical Interne at Buffalo State Hospital at Buffalo, N. Y., resigned July 1, 1922.
- WORDEN, DR. V. S. W., appointed Assistant Physician at St. Lawrence State Hospital at Ogdensburg, N. Y., June 1, 1922.
- WORK, DR. HUBERT, formerly Superintendent of Woodcroft Hospital at Pueblo, Colo., and recently Postmaster-General, appointed Secretary of the Interior.
- WORK, DR. PHILIP, Superintendent of Woodcroft Hospital at Pueblo, Colo., resigned to enter private practice in Pueblo.
- YOUNG, DR. CLAUDE R., appointed Medical Interne at Binghamton State Hospital at Binghamton, N. Y., June 22, 1922, and promoted to Assistant Physician October 1, 1922.



SUBJECT INDEX

NOTE.—Abbreviations: [Rev] denotes a book review, [N] an editorial note, [Obit] an obituary, [Abs] an abstract.

- Abbot, Florence Hale [Obit], 499.
Adequate support for medical activities in state hospitals [N], 485.
American Psychiatric Association. Proceedings of the seventy-eighth annual meeting, 285.
American Psychiatric Association, The next annual meeting of the [N], 123.
American Psychiatric Association, The responsibility of the, in relation to psychiatric nursing, E. H. Cohoon, 211.
American Psychiatric Association, The seventy-eighth annual meeting of the [N], 108.
American Psychiatric Association, The seventy-ninth annual meeting of the [N], 724.
Anhedonia, Abraham Myerson, 87.
Annual report of the commissioner of mental diseases [Rev], 357.
Aporrhagma reactions in psychoses, J. C. Whitehorn, 421.
Appointments, Resignations, Etc., 364, 746.
Archives of Occupational Therapy [N], 354.
- Ballintine, Eveline P. [Obit], E. H. Howard, 131.
Blood chemistry in mental diseases, Karl M. Bowman, 379.
Blood fragility studies in certain psychopathic states, Theophile Raphael and Frederick C. Potter, 409.
Broadened, The, interests of psychiatry, Albert M. Barrett, 1.
Brooklyn, N. Y., State Hospital [N], 490.
- Catatonic Dementia præcox: Physiotherapeutics and results obtained in a series of twenty cases, Daniel C. Main, 473.
Children, Recognition of pre-psychotic, by group mental tests, George E. Hyde, 43.
Clarke, Dr. Charles K., An Honor to [N], 723.
Classification of mental diseases, A physiological and anatomical approach to a, Harold A. Gosline, 235.
Clinical activities, The, of the Connecticut Society for Mental Hygiene, William B. Terhune, 273.
Conduct scheme, A further report on nurses, James S. Plant, 593.
Constitutional psychopathic inferior, The. A problem in diagnosis, Alice E. Johnson, 467.
Costs of a social service department in a state hospital *v.s.* economies effected thereby, Aaron J. Rosanoff, 49.

Craig, Anna [Obit], Russell E. Blaisdell, 131.

Crenshaw, Hansell [Obit], 497.

Dedication of two new psychopathic buildings at the Trenton State Hospital, Trenton, N. J. [N], 112.

Defective delinquent, The, and insane [Rev], Henry A. Cotton, 124.

Defective mental make-up, A, and the pernicious forms of torticollis, tinnitus, neuralgia and pruritus, Leland B. Alford, 67.

Dementia præcox, Catatonic: Physiotherapeutics and results obtained in a series of twenty cases, Daniel C. Main, 473.

Dementia præcox, The physiological level in, Theophile Raphael, 515.

Dementia præcox, Types of word association in, manic-depressives and normal persons, Gardner Murphy, 539.

Dr. Coe's gift to Portland, Ore. [N], 493.

Dr. Copp's resignation and new position [N], 349.

Efficiency survey, An, of the Worcester State Hospital, William A. Bryan, 221.

Elements, The, of scientific psychology [Rev], Knight Dunlap, 730.

Emotion and eye symptoms [Abs], W. S. Inman, 129.

Epilepsy, A statistical analysis of certain phases of, Olive Cushing Smith, 573.

Epilepsy, Hæmatological pictures in endocrine syndromes associated with, Harold A. Patterson, 427.

Epilepsy, Psychotic symptoms of, Harlan L. Paine, 713.

Escapes, Study of institutional, Charles F. Read and David B. Rotman, 75.

Etiology, The, and treatment of the so-called functional psychoses, Henry A. Cotton, 157.

Experiment, An, with simple tests for the insane, Marjory Bates, 61.

Expression, The, of emotion in cases of mental disorder as shown by the psychogalvanic reflex [Abs], E. Prideaux, 128.

Fire at Manhattan, New York, State Hospital [N], 727.

Follow-up work in mental and surgical cases, Earl D. Bond, 448.

Functional psychoses, Studies in focal infection: Its presence and elimination in the, Nicholas Kopeloff and Clarence O. Cheney, 139.

Functional psychoses, The etiology and treatment of the so-called, Henry A. Cotton, 157.

Further report on nurses conduct scheme, James S. Plant, 593.

General paresis: What it is and its therapeutic possibilities, H. C. Solomon, 623.

General pathology and its relation to certain mental diseases, Robert A. Keilty, 615.

Governor Smith and the N. Y. State Hospitals [N], 727.

Gundry, Lewis H. [Obit], 136.

- Habit clinics for children of the pre-school age, Douglas A. Thom, 31.
- Hall, Herbert James [Obit], 744.
- Hæmatological pictures in endocrine syndromes found associated with epilepsy, Harold A. Patterson, 427.
- Honor, An, to Dr. Charles K. Clarke [N], 723.
- Hospital personnel [N], 105.
- Illinois State Hospital Medical Service Bulletin [N], 493.
- Infection, Studies in focal: Its presence and elimination in the functional psychoses, Nicholas Kopeloff and Clarence O. Cheney, 139.
- Internal secretions, New evidence for sympathetic control of some, Walter B. Cannon, 15.
- Internal secretions, The, in their relationship to mental diseases, Beverly A. Tucker, 259.
- Juvenile court psychiatrist, Observations of a, O. G. Wiedman, 459.
- Kinney, Charles Spencer [Obit], 496.
- Long-section method, contra cross-section method in the study of mental disease, Helge Lundholme, James S. Plant and John C. Whitehorn, 439.
- Manic-depressives and normal persons, Types of word association in dementia præcox, Gardner Murphy, 539.
- Mental Diseases: A public health problem [Rev], James V. May, 731.
- Mental Hygiene, The clinical activities of the Connecticut Society for, William B. Terhune, 273.
- Mental tests, Recognition of pre-psychotic children by group, George E. Hyde, 43.
- Mosher, Dr. J. Montgomery [N], 485.
- Mosher, Jesse Montgomery [Obit], 733.
- Neuro-psychiatric ex-service man, The, and his civil Re-establishment, Guy O. Ireland, 685.
- Neuro-psychiatric service, The, of the Department of Soldiers' Civil Re-establishment, Canada, Clarence B. Farrar, 665.
- New evidence for sympathetic control of some internal secretions, Walter B. Cannon, 15.
- New Method, A, of studying the ideational behavior of mentally defective and deranged as compared with normal individuals [Abs], R. M. Yerkes, 130.
- New post-graduate school of neurology and psychiatry [N], 355.
- New York's governor and the care of the insane [N], 490.
- Nursing, The responsibility of the American Psychiatric Association in relation to psychiatric, E. H. Cohoon, 211.

- Observations of a juvenile court psychiatrist, O. G. Wiedman, 459.
- Obsessive compulsive conditions, A study of the mechanism of, Phyllis Greenacre, 527.
- Paresis, The treatment of, by malaria [N], 721.
- Pathology, General, and its relation to certain mental diseases, Robert A. Keilty, 615.
- Perry, Stephen Warner [Obit], Herman Ostrander, 134.
- Personality, The practical value of the study of, in mental diseases, George S. Amsden, 501.
- Physiological, A, and anatomical approach to a classification of mental diseases, Harold A. Gosline, 235.
- Physiological level, The, in dementia præcox, Theophile Raphael, 515.
- Practical value, The, of the study of personality in mental diseases, George S. Amsden, 501.
- Pre-school age, Habit clinics for children of the, Douglas A. Thom, 31.
- Proceedings of Societies:
- American Psychiatric Association. Proceedings of the seventy-eighth annual meeting, 285.
- Psychiatric Milestone, A, [Rev], 127.
- Psychiatry, The broadened interests of, Albert M. Barrett, 1.
- Psychology: A study of mental life [Rev], R. S. Woodworth, 124.
- Psychology in medicine, F. L. Wells, 451.
- Psychoneuroses, The, C. Macfie Campbell, 367.
- Psycho-neurotic ex-service men, Some important factors in the hospital treatment of, Thomas J. Heldt, 647.
- Psychotic symptoms of epilepsy, Harlan L. Paine, 713.
- Question, The, of the therapeutic value of "abstraction" [Abs], C. J. Jung, 128.
- Ratliff, Joseph M. [Obit], H. C. Eyman, 135.
- Reaction, The simple, in psychosis, F. L. Wells and C. M. Kelley, 53.
- Recognition of pre-psychotic children by group mental tests, George E. Hyde, 43.
- Responsibility, The, of the American Psychiatric Association in relation to psychiatric nursing, E. H. Cohoon, 211.
- Seventy-eighth annual meeting of the American Psychiatric Association [N], 108.
- Seventy-ninth annual meeting, The, of the American Psychiatric Association [N], 724.
- Sex in psychoanalysis [Rev], S. Ferenczi, 356.
- Simple reaction, The, in psychosis, F. L. Wells and C. M. Kelley, 53.
- Smith, J. Anson [Obit], 498.
- Smith, Stephen [Obit], 358.

- Social service department, Costs of a, in a state hospital *vs.* economies effected thereby, Aaron J. Rosanoff, 49.
- Some important factors in the hospital treatment of psycho-neurotic ex-service men, Thomas J. Heldt, 647.
- State hospital physicians and the recognition and diagnosis of physical disorders in their patients [N], 346.
- State of Iowa. Bulletin of State Institutions [Rev], 357.
- Statistical analysis, A, of certain phases of epilepsy, Olive Cushing Smith, 573.
- Studies in focal infection: Its presence and elimination in the functional psychoses, Nicholas Kopeloff and Clarence O. Cheney, 139.
- Study, A, of the mechanism of obsessive compulsive conditions, Phyllis Greenacre, 527.
- Study of institutional escapes, Charles F. Read and David B. Rotman, 75.
- Taylor, Dr. Isaac Montrose [Obit], 494.
- Tests, An experiment with simple, for the insane, Marjory Bates, 61.
- Todd, Leona E. [Obit], Robert M. Elliott, 133.
- Treatment, The, of paresis by malaria [N], 721.
- Types of word association in dementia præcox, manic-depressives and normal persons, Gardner Murphy, 539.
- Woman member, A, of the New York State Hospital Commission [N], 490.

AUTHORS' INDEX

- Alford, Leland B., A defective mental make-up and the pernicious forms of torticollis, tinnitus, neuralgia and pruritus, 67.
- Amsden, George S., The practical value of the study of personality in mental diseases, 501.
- Barrett, Albert M., The broadened interests of psychiatry, 1.
- Bates, Marjory, An experiment with simple tests for the insane, 61.
- Blaisdell, Russell E., Anna Craig [Obit], 131.
- Bond, Earl D., Follow-up work in mental and surgical cases, 448.
- Bowman, Karl M., Blood chemistry in mental diseases, 379.
- Bryan, William A., An efficiency survey of the Worcester State Hospital, 221.
- Campbell, C. Macfie, The psychoneuroses, 367.
- Cannon, Walter B., New evidence for sympathetic control of some internal secretions, 15.
- Cheney, Clarence O., Nicholas Kopeloff and, Studies in focal infection: Its presence and elimination in the functional psychoses, 139.
- Cohon, E. H., The responsibility of the American Psychiatric Association in relation to psychiatric nursing, 211.
- Cotton, Henry A., The etiology and treatment of the so-called functional psychoses, 157.
- Elliott, Robert M., Leona E. Todd [Obit], 133.
- Eyman, H. C., Joseph M. Ratliff [Obit], 135.
- Farrar, Clarence B., The neuro-psychiatric service of the Department of Soldiers' Civil Re-establishment, Canada, 665.
- Gosline, Harold A., A physiological and anatomical approach to a classification of mental diseases, 235.
- Greenacre, Phyllis, A study of the mechanism of obsessive compulsive conditions, 527.
- Howard, E. H., Eveline P. Ballantine [Obit], 131.
- Hyde, George E., Recognition of pre-psychotic children by group mental tests, 43.
- Ireland, Guy O., The Neuropsychiatric ex-service man and his civil re-establishment, 685.
- Keilty, Robert A., General Pathology and its relation to certain mental diseases, 615.
- Kelley, C. M., F. L. Wells and, The simple reaction in psychosis, 53.

- Kopeloff, Nicholas, and Clarence O. Cheney, Studies in focal infection: Its presence and elimination in the functional psychoses, 139.
- Lundholme, Helge, James S. Plant and John C. Whitehorn, Long section method, contra cross-section method in the study of mental diseases, 439.
- Main, Daniel C., Catatonic dementia præcox: Physiotherapeutics and results obtained in a series of twenty cases, 473.
- Murphy, Gardner, Types of word association in dementia præcox, manic-depressives and normal persons, 539.
- Myerson, Abraham, Anhedonia, 87.
- Ostrander, Herman, Stephen Warner Perry [Obit], 134.
- Patterson, Harold A., Hæmatological pictures in endocrine syndromes associated with epilepsy, 427.
- Plant, James S., A further report on nurses conduct scheme, 593.
- Plant, James S., Helge Lundholme, and John C. Whitehorn, Long-section method contra cross-section method in the study of mental disease, 439.
- Potter, Frederick C., Theophile Raphael and, Blood fragility studies in certain psychopathic states, 409.
- Raphael, Theophile, The physiological level in dementia præcox, 515.
- Raphael, Theophile, and Frederick C. Potter, Blood fragility studies in certain psychopathic states, 409.
- Read, Charles F., and David B. Rotman, Study of institutional escapes, 75.
- Rosanoff, Aaron J., Costs of a social service department in a state hospital vs. economies effected thereby, 49.
- Rotman, David B., Charles F. Read and, Study of institutional escapes, 75.
- Smith, Olive Cushing, A statistical analysis of certain phases of epilepsy, 573.
- Solomon, H. C., General paresis: What it is and its therapeutic possibilities, 623.
- Terhune, William B., The clinical activities of the Connecticut Society for Mental Hygiene, 273.
- Thom, Douglas A., Habit clinics for children of the pre-school age, 31.
- Tucker, Beverly A., The internal secretions in their relationship to mental diseases, 259.
- Wells, F. L., Psychology in medicine, 451.
- Wells, F. L. [Rev], Psychology: A study of mental life, R. S. Woodworth, 124.
- Wells, F. L., and C. M. Kelley, The simple reaction in psychosis, 33.
- Whitehorn, J. C., Aporrhagma reactions in psychoses, 421.
- Whitehorn, John C., Helge Lundholme, James S. Plant and, Long-section method, contra cross-section method in the study of mental disease, 439.
- Wiedman, O. G., Observations of a juvenile court psychiatrist, 459.

LIST OF ILLUSTRATIONS

Frontispiece—Portrait of Albert M. Barrett.

Facing page 141.

The Internal Secretions in their Relation to Mental Disturbance.

Perimeter Charts, 267.

The Clinical Activities of the Connecticut Society for Mental Hygiene.

Graph I, 277.

Aporrhagma Reactions in Psychoses.

Fig. 1, 425.

The Constitutional Psychopathic Inferior.

Graph, 469.

Frontispiece. Portrait of Jesse Montgomery Mosher.

Facing page 501.

The Psychologic Level of Dementia Præcox.

Fig. 1, 519; Fig. 2; 521.

Types of Word Association in Dementia Præcox, Manic-Depressives, and Normal Persons.

Graph 1, 555; Graph 2, 555.

A Statistical Analysis of Certain Phases of Epilepsy.

Fig. 1, 574.

Further Report on Nurses' Conduct Scheme.

Chart I, 611; Chart II, 611.

Some Important Factors in the Hospital Treatment of Psychoneurotic Ex-Service Men.

Chart I, 652; Chart II, 654; Chart III, 655; Chart IV, 660.

The Neuropsychiatric Service of the Department of Soldiers' Civil Re-Establishment, Canada.

Chart I, 667; Chart II, 669; Chart III, 683.

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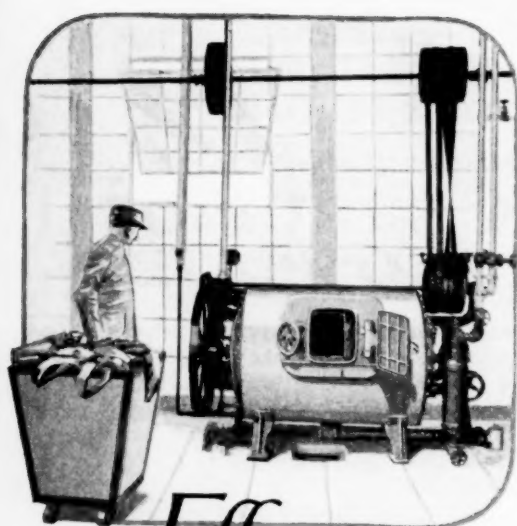
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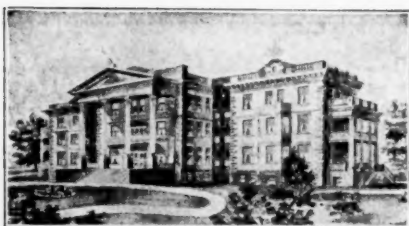
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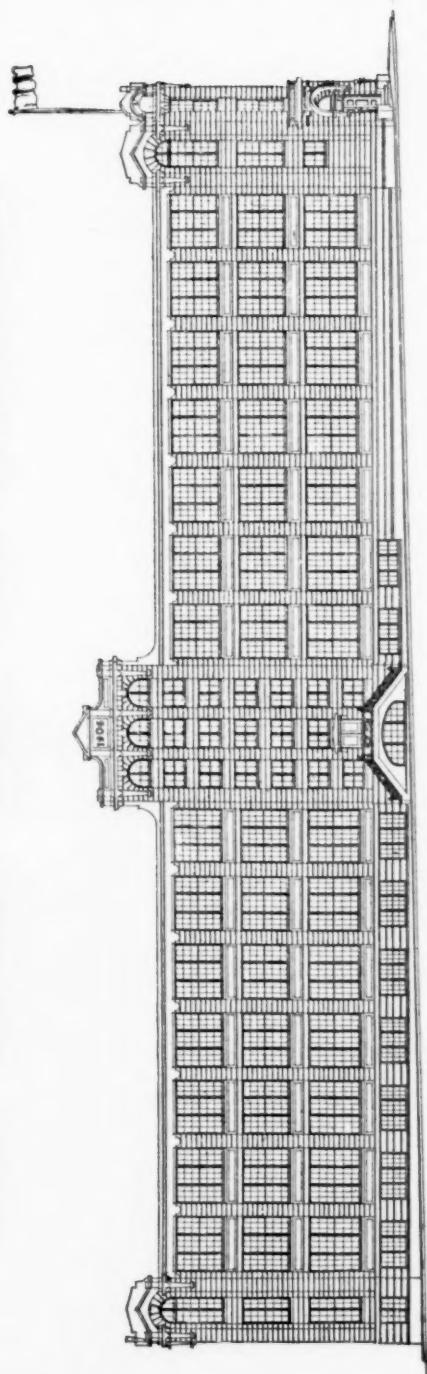
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